The Boston Medical and Surgical Journal

TABLE OF CONTENTS

August 19, 1920

Original Articles.

ACIDOSIS OF THE RECURRENT VOMITING TYPE. THE CASE OF DARTHEA M.

BY W. W. MCKIBBEN, M.D., WORCESTER, MASS.

ACIDOSIS as defined by Cautley is "an abnormal metabolism of carbon leading to the appearance of organic acids in the blood and urine, and to formation of ammonia to neutralize these acids."

The term had become so generally misused by faddists, who made no tests for the acetone bodies in the urine, that it was refreshing last summer to see such articles appear as Garland's statistics from the children's ward of the Massachusetts General Hospital. He called attention to the fact that of 734 consecutive cases admitted, 127, or 17%, showed acetone in the urine by the sodium-nitro-prussid test, this being used for standard for the acid group. Only two were discharged with the sole diagnosis of acidosis, showing that acetonuria is a common clinical finding, whereas acidosis is relatively rare. Respiratory diseases represented 43%, and the acetone was more frequently found during fevers.

In the March number of the *British Medical Journal*, Thomas described febrile acidosis in seven consecutive cases of scarlet fever, recommending that sodium bicarbonate be given for a week or ten days, the dose being regulated by the reaction of urine. He advises this treatment in every other acute febrile complaint of children. This suggests the advisability of a low fat and high carbohydrate diet in these cases.

In contradistinction to this frequent acetonuria seen in febrile and metabolic troubles of childhood is true acidosis or acid intoxication. This is similar to a third type I am about to describe, to a certain point, but often not improving as the vomiting ceases; then follow delirium, convulsions, air hunger, half-closed-sunken-upturned eyes, injected conjuctivae, cherry-red lips, rapid thready pulse, rising temperature, coma, and death.

But the following case of Darthea M., aged 20 months, is so illustrative of the third type of acidosis known as recurrent, cyclic or periodic vomiting, that it may be taken as a description of the symptoms and problems of this acid syndrome.

Darthea's great-grandmother, on the maternal side, had a severe attack of rheumatic fever every January for nine successive winters, and also had sciatica and heart trouble; the great-grandfather had "catarrh" badly, as did his son and grandson; he, too, had articular rheu-

matism and died of heart trouble. Her grandfather was subject to croup till eight years of age. Her grandmother was a sufferer from sciatica and articular rheumatism and had bad tonsils; her uncle had over one hundred boils and carbuncles due to purulent ethmoidal sinusitis, relieved by removal of part of the middle turbinate and nasal polypi; her father had carbuncles or deep-seated abscesses beginning every summer when fresh vegetables and violent out-of-door sports were indulged in; x-ray showed two bad root abscesses; extraction was followed by relief unless fatigue intervened; 104 protein skin tests were done in October and a diet followed, but it is too early to draw conclusion as another summer has not yet arrived. A blood-cousin began Eskay's albuminized food at ten months and soon had disfiguring urticarial spots break out on the face which persisted until she was 2½ years old, when she had a fresh crop every Sunday; although she was not getting eggs in her diet, it was discovered that her father treated her to an ice cream cone at Elm Park Spa every Saturday afternoon. This was stopped and her face has been clear for nine months.

The baby's mother had colds and croup with cyanosis when one to two years old; also urticaria; pertussis at six years, was followed by all-night attacks of asthma till her marriage, when the removal of a spur and a part of the turbinates entirely and permanently relieved her, so that she was in perfect health for 12 years until a month and a half before the baby came, when there was a sudden suppression of the urine to four ounces in 24 hours, backache, headache, diplopia, blurred vision, vertigo and swelling of the fingers and ankles; her blood pressure did not exceed 134 nor were there any casts or albumin in the urine; these symptoms have persisted ever since to a milder degree in spite of two complete x-rays of the teeth, followed by two extractions of teeth and enucleations of both tonsils; she had over a hundred protein skin tests done in October, and although following a rigid diet, she was not wholly relieved, although much better of her symptoms.

Consequently Dr. Oliver Stansfield, physiochemist at Memorial Hospital, was asked to look over the mother's urine. He returned the following instructions on finding a heavy trace of albumin:—

"I am enclosing a scheme for examination as well as a diet list. Of course the diet will vary somewhat as conditions vary, the prime object being to keep the patient in as good physical and mental condition as possible. If you will cross out the foods to which she is protein-sensitive we can rearrange the list more definitely. The plan of examination will cover the case very thoroughly. It is essential not to allow anemia to develop, by underfeeding protein, and equally essential not to allow of protein retention. By repetition of these tests, a good account of progress can be kept.

Phenolsulphonephthalein test:—24-hour specimen—with day and night collection separated. Repeated weekly for some time.

Blood chemistry—repeat in a week.

Thorough physical examination, including eye grounds.

Blood examination for hemoglobin, red and white cells and differential—repeated monthly.

Blood pressure twice weekly. Weight taken twice weekly.

Diet: Salt-poor-fluids limited according as weight varies. Diet protein poor.

Eliminate from groups food to which sensitive. Foods allowed (a star is placed opposite those articles to which she is protein sensitive):

GROUP 1.

Milk, 1 glass
*Custard
Malted milk, 1 glass of, prepared
*Grapenut cereal
*Walnuts (10)
*Brazil nuts (10)
*Oatmeal with cream or milk and sugar
*Cocoa
*Cream toast

GROUP 2.

Buttermilk, 1 glass
*Eggs, 1
*Butter beans
*Red kidney beans
*Corn, green
*Potatoes, white
*Potatoes, sweet
*Bread, brown, per slice
*Bread, white
*Bread, graham
*Buns, cinnamon
*Biscuits, home made
*Rolls, 1
*Barley gruel
*Hominy
*Corn meal
*Spaghetti, baked
*Shredded Wheat Biscuit, 1
*Cakes
*Pies
*Bread pudding
*Chocolate
*Tapioca
*Rice pudding or boiled rice
Blanc mange
Ice cream, vanilla
Almonds (10)
Peanuts (15)
Pecan nuts (10)

GROUP 3.

Butter, unsalted
*Cream
String beans
*Beets
*Cabbage
*Carrots
*Cauliflower
*Celery
*Cucumber
Onions
*Parsnips
*Squash
*Tomatoes
*Turnips
*Apples
Cherries
*Huckleberries
Gooseberries
*Lemons
*Oranges
Cantaloupes
Peaches
*Peas
Plums
Raspberries
Watermelons
Prunes
*Raisins
*Cranberries
Marmalade and preserves, of allowed fruits
Rhubarb
*Crackers, soda and butter, unsalted
*Force and similar cereal preparations
Ices
*Farina
Honey
*Sugar
*Maple sugar and syrup
*Corn syrup

Method of using diet list:

1. For each helping of food from Group 1, score 2. For each helping from Group 2, score 1. Group 3 need not be scored.

2. Total daily score must not exceed eight.

3. The portions of each food, excepting where mentioned, are the usual helping.

4. The diet should be as free from salt as possible.

5. Fluids should be restricted to a quart per day, temporarily."

The following is the result of Dr. Stansfield's blood and urine examination on the mother January 13, 1920:—

"Blood urea nitrogen equals 45 mg. per 100 cc., which is twice the normal. Urine:—Reaction neutral; Sp. gravity, 1024; albumin, heavy trace; sugar, negative; acetone, negative. Microscopically:—No casts found. No red blood cells, and only an occasional white blood cell. Many squamous epithelial cells."

At Dr. Stansfield's suggestion, following the blood and urine examination, Dr. Lester Miller made a comparatively negative physical examination and Dr. Roger Kinnicutt found normal hemoglobin, red and white cells; there was no leucocytosis.

Dr. John Talbot, her obstetrician, still believed the sight of the focal infection was in the teeth. He found the blood pressure 139. Dr. Fred Crerie, her dentist, however, could find nothing localized by Roentgen ray, but scaled her teeth. Dr. Frank Dean is to again check Dr. Crerie by x-ray for the second time. Dr. Charles Estabrook found the eye-grounds negative.

The day quantity of urine averages from five to six ounces; the night about 15 ounces.

The phenolsulphonephthalein tests showed 45% in two hours.

Twice during the month the 24-hour quantity of urine shot up to 44 ounces; then the weight dropped three pounds. The weight at first 160 pounds, is now averaging 155 pounds.

At Dr. Stansfield's request the mother was for 10 days studied by Dr. James P. O'Hare, at Peter Bent Brigham Hospital. Like Dr. Stansfield, he found the renal trouble functional and not organic. He advised a liberal diet, excluding only those articles actually disagreeing, regardless of protein skin reactions. With Drs. Frothingham and Davidson he concluded that nervous exhaustion was the dominating feature and advised golf and life in the open, avoiding reading books on psychic phenomena, etc.

Darthea M. proved to be a healthy, ruddy-cheeked baby her first year, gaining the required amount for 52 weeks. However, with the starting of orange juice and one feeding of modified milk at five months, she showed transient patches of eczema and urticaria. She was weaned onto modified certified cow's milk at seven months, and was given beef juice at ten months. June 25th, at one year of age, she weighed 21 pounds, her cheeks and body were rosy, and her condition apparently perfect.

It was at this time that cream of wheat, imperial granum, and barley jelly were added to her milk, besides being given wheat bread. After one week of this addition of wheat foods to her diet, the explosion occurred, precipitated by the intense heat just preceding July 4th.

The Worcester Technology Chemical Laboratory had just found a low bacterial count of 2000 on the certified milk; it came packed in ice in Walker-Gordon portable refrigerators,

and all the bottles and nipples were kept sterile. Her face had been blotched with urticaria for several days. After her regular normal defecation on arising she ate well and played happily all Tuesday morning.

At 1.30 P.M., suddenly without warning, she began to vomit. At 4 P.M., when first seen by the writer she was retching and vomiting about every 15 minutes; stomach washing with soda bicarb. relieved for a short time, but later teaspoonful doses of cool boiled water and lime water, alternating with soda bicarb. water, were rejected as soon as taken.

The thirst and prostration rapidly became extreme as did the restlessness; the tongue became heavily coated, the breath of sweet fruity odor much like chloroform, changing later to putrescent.

There had been a slight cough for several days; it now became paroxysmal exactly resembling whooping cough, with sharp inspiration and crowing, followed by vomiting or gagging; there had been a great deal of whooping cough in the neighborhood, so that two doses of vaccine were given at 48-hour intervals. The vaccine was made by washing strains of killed bacilli with salt solution. This treatment seen in the light of subsequent events, although not harmful, not being a serum, was unnecessary as the cough was due to urticaria of the laryngeal mucous membrane.

Intestinal lavage of two quarts of soda bicarb. solution was done in the evening and following morning. These relieved the thirst somewhat, but all soda solution (teaspoonful to a glass of water) and teaspoonful doses of milk of magnesia were vomited.

Soda bicarb. solution was then injected into the rectum every four to six hours, four ounces at a time, introducing the catheter eight or nine inches. Everything by mouth was stopped.

The rectal temperature remained normal, the pulse averaged 140, but the respirations climbed to 80 a minute the third night when the air hunger was most marked, the panting and sighing continuing through the long hot night. The stools became foul, loose, green, and full of mucus.

The urine had a strong ammoniacal odor, and at first contained acetone and diacetic acid in large amounts. It scalded the sensitive skin, which already showed transient patches of urticaria; the skin emanated a putrescent odor and was of a purple mottled hue at times; there was a violet color under the eyes and the extremities were cold. Although weak and listless, she was extremely sensitive to all noises and instantly became alert to adventitious sounds.

Since Tuesday morning no food had passed her lips; but Sunday morning, after refusing water, soda bicarb. water, barley-water, and a weak malted milk solution from cup and spoon, —even gagging—when the malted milk was offered her in her bottle, she gave a glad little cry, grabbed the bottle, devoured the half ounce and cried loudly for more.

She had lost one pound in five days. Convalescence was rapid. She was gradually worked back onto skimmed cow's milk with cereal diluents as before, avoiding eggs, oatmeal, cream and orange juice. Although a little color appeared in her cheeks, there was a background of marble white, violet circles under her eyes, and no gain in weight at all during July and August. She had some urticaria rarely and a little eczema.

It was at this time that the writer succeeded in getting a good Toggenberg goat from the mother of a 19 months old baby, who had just gotten back onto cow's milk; in this case the mother had three-week attacks of rheumatism every year; when her baby was four months, she attempted to give him a few mouthfuls of cow's milk. This was followed by urticaria, asthma, much mucous discharge and a temperature of 101 to 103; a diagnosis of measles had been given. When the baby was 10 months old the writer was asked to superintend its weaning from the breast; a few drops of very weak modified milk feeding precipitated an attack of croup, followed by asthma in which air hunger, cyanosis and mucus were so severe that the mother was fearful of her baby's life; patches of urticaria broke out all over the body, leaving practically no area of skin unaffected; this was controlled by adrenalin chloride, two minims hypodermically, loosening the clothes around the neck, and placing the baby's face downward to allow the mucus to run out; boiled milk, buttermilk or Nestle's Food, in which the protein had been desensitized were not tried. At Dr. John Morse's suggestion, the baby was put onto goat's milk without any difficulty and at 19 months was able to go onto cow's milk without showing any anaphylaxis to it.

On September first, Darthea M.'s cow's milk was changed to this goat's milk and the picture

entirely changed. Even 24 hours showed a marked difference:—her color rapidly improved, she gained four ounces the first week, 15 ounces the second, and five ounces the third. Then four molar teeth appeared. She caught her first cold when taken on a 40-mile auto ride on a balmy day. The stools then became costive and showed fat indigestion from the 7.1% fat contained in the goat's milk before dilution.

So imperial granum, cream of wheat, and barley gruels were again called into service as diluents, and another explosion of vomiting for five days was precipitated. Her thirst was practically negligible this time and her strength better maintained by giving absolutely nothing by mouth; a daily cleansing enema of a quart of soda bicarb. solution (tablespoonful to the pint) was given and four ounces of a 5% solution of Merck's dextrose were introduced eight inches into the rectum every four hours. Convalescence was again rapid and the hunger so extreme it was difficult to appease it without overfeeding.

As the cream does not rise on goat's milk after standing, there were only three ways to reduce the 7% fat. One was to send to the goat farm for a doe just kidded, whose milk by analysis showed 3.90% fat, and 13.50% total solids; another was to buy a DeLaval cream separator (at $57.00); the third, to dilute the milk and add dextri-maltrose to bring up the caloric needs, as these babies handle malt sugar better than cane sugar; but as the dextri-maltrose is made from wheat, it had to be omitted in this case.

On the advice of an old classmate, Dr. William W. Howell, the baby was taken to Dr. John Turnbull, the second week in October, to ascertain to what proteins she was sensitive. He found she reacted to wheat, oatmeal, orange, chicken, potato, corn, and rice. She showed only a light delayed reaction to cow's milk, so one feeding of cow's milk and three of goat's milk were given daily, as the goat gave less than a quart a day at that time. She also took scraped beef, beef juice, barley, gluten toasted bread, eggs, broths, and prune juice. She gained in weight until the first week of December, when as she again approached her three months' cycle limit, she began to have urticaria, scalding from the urine with an ammoniacal odor, foul breath, violet circles under her eyes, stationary and even loss in weight. Dr. Turnbull again did 25 skin tests and found the same results except a more marked sensitiveness to cow's milk and no reaction to rice. As the gluten flour contained only 40% gluten, she reacted to that and it was decided to omit the bread from her diet and try to find some bread made from pure rice flour from Battle-creek, or grind our own flour from pure rice grains in the coffee-grinder. Cow's milk was entirely omitted. At the same time, Dr. Morse gave the baby a careful physical examination and found her normal in every way for her age; he also found the urine normal, as well as the stools, to ordinary tests, the latter not showing any fat indigestion.

On December 16, the following communication was received from Dr. Stansfield:—

"I think the best way to head off any impending attack would be to follow closely the acid excretion. That could be done by obtaining the morning urine, after the night's fast, and before her first meal. We could determine the total acid body excretion, its partition and the ammonia coefficient. These would give us warning of any impending attack, provided the attack did not have an exceedingly rapid onset. Any untoward behavior could be made an indication for reëxamination. Repetitions of examination could be done as often as you could collect specimens.

"The Alkali Tolerance test would be useful in case she presented any untoward symptoms. Furthermore, the alkali would be of benefit if there was an acidosis.

"Blood examination would not give any additional information to the above.

"I have thought that perhaps your patient is sensitive to cow's milk. Was this tried with other tests?

"Another possible lead is the fact that eczema in infants is often due to the protein sensitiveness—almost always where several proteins are at fault. The recurrent attacks may be anaphylactic in nature, rather than due to ketone acidosis. Repeated and many examinations would probably solve this question.

"Have you considered desensitizing by arbitrarily selecting what seems to be the protein chiefly offending, and given small amounts, gradually increased,—by mouth?

"I have written at this length as I realize your difficulty and desire to give you what help I can."

On December 22, as she had almost reached the end of her three months cycle, and had

many evidences of acid intoxication, a specimen of the morning urine was submitted to Dr. Stansfield to determine whether 30 grains of soda bicarb. daily were sufficient. He found that the ammonia nitrogen was 18.8% of the total nitrogen, the maximum limit being 12½%; acetone and diacetic acid were in excess. He telephoned that she was on the verge of another attack of recurrent vomiting and to push up the soda bicarb. to sufficient amount to rapidly make the urine alkaline. Eighty grains a day were given, her caloric intake reduced, milk of magnesia given in much water, and her symptoms rapidly ameliorated. She vomited only once and a small amount.

On December 28, the ammonia nitrogen was 12.3%, or the normal high limit. The urine was alkaline in reaction. The soda was reduced to 20 grains a day and omitted January 6, with the reaction neutral, and the ammonia nitrogen 1.8%, acetone and diacetic acid still positive. On January 13, the ammonia nitrogen was again quite normal.

Specimen of December 22, 1919, in detail:—

Titrable Acid (*i.e.*, acid neutralizable with standard alkali) 38.0 cc. per 100 cc. urine. Total acid excretion, 73.0 cc (comprises titrable acid plus ammonia). *Titrable Acid + Ammonia* = 1.08%. This figure is probably normal for a baby. The ratio is used as an index of inorganic phosphate retention, such as occurs in the acidosis of nephritis. *Total Phosphates,* 0.19 gm. P_2O_5 71% of titrable acid. *Total Nitrogen,* 0.20 gm. per 100 cc. *Ammonia Nitrogen,* 18.8% total nitrogen.

The total acid excretions of the phosphates show nothing but were determined for the future comparisons.

The ammonia per cent. of the total nitrogen is high (normal high limit 10-12%). This indicates that ammonia is being formed under stress to neutralize an excess of acid, hence its significance as an index of acidosis.

Specimen of December 28, 1919:—

Urine Alkaline (due to carbonates). Ferric chloride reaction positive. Nitro prussid reaction positive. Total nitrogen, 1.54 gm. per 100 cc. Ammonia nitrogen, 0.19 gm. per 100 cc. 12.3%.

It was obviously impossible to determine the acid factors in this specimen. The ammonia per cent. has dropped considerably to about the normal high limit. The ferric chloride and nitro prussid reactions are positive, most probably being due to diacetic acid neutralized by the alkali administered and so excreted. The kidneys cannot excrete uncombined acid. The presence of this body indicates that disturbance of acid base equilibrium, due to disordered fat metabolism, was at fault.

Specimen of January 1, 1920:—

Urine feebly acid in reaction. Total nitrogen, 0.67 gm. per 100 cc. Ammonia nitrogen, 0.016 gm. per 100 cc. 2.3% of total.

Acetone, negative; diacetic acid, negative; albumin, negative; sugar, negative. Microscopically, a few epithelial (squamous) cells and urate crystals.

Dr. J. P. Crozer Griffith, of Philadelphia, in his two new volumes of pediatrics, just out, ably sums up recurrent vomiting as "a toxic neurosis occurring in those especially predisposed to it, and that the outbreak depends on the gradual heaping up in the system of a poison of a nature as yet undetermined; yet it may be an acid arising possibly in the digestive tract or more probably in disordered metabolic processes and that inability to assimilate the fat in the diet is the direct cause in many instances. That some poison is at work is certainly indicated by the degenerative changes in the kidneys and other internal organs sometimes found in fatal cases. It is distinctly a disease of private practice only."

Dr. Griffith was kind enough to explain some of the symptoms as shown by Darthea M. in the following résumé:—

"The case of your little patient is certainly a very puzzling one. The tendency to eczema which is shown suggests a certain development of exudative diathesis,—just the kind of a case which, as time passed, would be followed by asthmatic manifestations. It seems to me that that much is very certain. This diathesis must give her a predisposition to urticaria, eczema, and asthma, entirely independent of any anaphylactic reaction. I do not mean that she has no anaphylaxis for cow's milk, because it seems most probable that she has; but I mean that it is perfectly possible for her to develop these symptoms from the autointoxication of an attack of indigestion, irrespective of anaphylaxis, and on account of the diathesis referred to. It may be that this baby has an anaphylactic reaction to milk of any kind, and if that is so, the only thing to do is to try to get along without it. It seems to me, however, that we are

working a little in the dark, and that the wise thing to do would be to test this child's skin reaction to various proteins, and see just what could be safely given her from the point of view of her anaphylaxis. On the other hand, she clearly has her attacks brought on, or at least preceded by digestive disturbances, and from this point of view one must regard her as an instance of chronic intestinal indigestion, with various complicating manifestations. All this, of course, is important in the way of treatment.

"Taking up some of your questions, I would say that I do not believe the cold which she took, or the eruption of the teeth would account in any way for her toxic attack. I think I would continue the soda for the present, the dosage which you are using being sufficient, unless symptoms of acidosis appear, when, of course, a much larger amount would be necessary. I do not believe that anything is to be gained by giving aspirin or sodium salicylate. It has impressed me throughout the whole of your letter that the 'whooping cough' was not whooping cough, but a condition associated with urticaria of the mucous membranes. That attack seems to me to have been certainly anaphylactic. It does not appear to me from your letter that the baby was any worse after the serum injections than before them. I do not believe that they played a very important part, although of course about this, one cannot be certain. As to the question about the effect of acid fruit-juices, oatmeal, beef juice, and the like, I am entirely uncertain in my own mind. I would certainly try all these things by cutaneous reactions. As to the length of time that the sensitiveness to cow's milk will continue, I do not think there is any very definite knowledge. This is because cases that are undoubted instances of intolerance to cow's milk are not at all common; in my own experience quite uncommon, although I have seen a great many which have been called that. I would not try her with any cow's milk for a good many months, if you can help it, and then to begin with exceedingly minute doses, given every day, and steadily increased in amount. It is important, I think, in such cases, to give the small doses frequently, and continue this in order to establish tolerance. Whenever the baby gets an attack of disturbed digestion, with or without the other symptoms, I would take her right off of milk, as you have done; purge her thoroughly, give her barley water, glucose, or some substance, and give particular attention to maintain the moisture of her tissues by the administration of liquid in some way, even if it has to be by the skin or intraperitoneally. This, I notice, is what you have been doing already. You are giving her broths and scraped meat already, which looks as though she were tolerant for meat proteins, and I do not see why we cannot get sufficient protein material by giving her meat in increased amount, and depending on various cereals for carbohydrates. Of oatmeal, however, I am a little more suspicious than I am of some of the others.

"If you need any help in the matter of anaphylactic reactions, and advice upon this point, there is no one I know who can give it to you better than Dr. Fritz B. Talbot of Boston. He and Dr. Schloss of New York have done more in that line than anybody else I know."

When the new Sannen goat with milk containing 3.90% fat was substituted for the Toggenberg goat, with 7.10%, and all protein to which she was sensitive was eliminated from the diet, Darthea M. not only passed her third cycle successfully, but again became a ruddy-cheeked normal baby. She had a long out-of-door morning nap and spent her afternoons warmly dressed on the veranda in her play-yard.

However, by February 1, 1920, she had not shown a consistent gain in weight, being about a pound under weight. Then, too, there was an occasional suggestion of *fetor-ex-ore*, a fine urticarial rash, dark circles under her eyes, an urticarial cough; all this in spite of a normal daily regular stool.

As both Dr. Morse and Dr. Griffith had suggested having Dr. Fritz Talbot interpret the significance of the skin reactions and working out the problems of metabolism, the baby was taken to Boston on February 4, where Dr. Talbot made a thorough examination of the baby, her urine, and her feces. He found evidence of fat indigestion microscopically in the latter, but did not place much importance on the skin reactions as her skin was so sensitive to any trauma that even the control showed some reaction in the way of redness but no urticarial wheal.

Dr. Talbot mapped out the following treatment:—

"Add one Hynson and Westcott lactic acid tablet three times a day to a milk feeding.

"Continue the goat's milk. Get a supply of condensed goat's milk from Walker-Gordon for emergency. (This can be obtained wholesale from California.) Do not start cow's milk until baby begins to gain, and then increase only a drop daily, the principle being to increase a small amount often to desensitize, and to increase at long intervals of ten days or two weeks to render individuals more sensitive to a certain protein.

"Give 25 grains of fused-calcium-chloride three times a day, well diluted, for one week. (Blood calcium will last for two months.) If you cannot get fused-calcium-chloride give 25 grains calcium-lactate for two weeks.

"Work out dextri-maltose gradually, using cane sugar instead.

"Cook foods thoroughly, not necessarily a long time, but use the greatest heat, *e.g.*, baked custard better than boiled, or bread baked and toasted, too.

"Of the meats, lamb and beef can be used as before. Beechnut bacon is good in small amounts, gradually increasing. If bacon goes well, give a very little ham; the German hams from a delicatessen store are best, as recurrent vomiting is unknown in Germany where these hams are used; slice very thin, working up gradually, taking three months to get up to a teaspoonful of any kind of these meats.

"The skin reaction to spinach is not conclusive; but start with only a teaspoonful; later, use string beans and purée of peas put through a sieve; take one month or six weeks to work up to two teaspoonfuls. Give each vegetable every second or third day two weeks. Try the hearts of boiled onions in minute amounts; also cauliflower—all vegetables to be put through a sieve.

"Home-made preserved pears and peaches do not contain the thick syrup that the bought variety do, and the juice is preferable. Prune juice and prune pulp are good.

"Use Japanese rice wafers made of pure rice flour, Kasava bean flour wafers. When two years old, change from one cereal grain to another.

"For the attack, give 1/360 grain of atropine, repeated in two hours; one minim of adrenalin chloride on the back of the tongue; a teaspoonful of soda."

Fused calcium-chloride was so noxious to the taste, even diluted, that the calcium lactate treatment was substituted. The Japanese rice wafers are not now obtainable at S. S. Pierce's; the American substitute contains some wheat flour. The Kasava wafers are not agreeable, being very flat and tasteless.

However, on her limited diet, Darthea M., seven months after her last attack, is now perfectly well, and is normal in weight for her age, in spite of the vicissitudes through which she has passed. It has not been necessary to remove either her tonsils or her appendix, but only to follow out Dr. Fritz Talbot's invaluable suggestions given above, taking advantage of the information given by Dr. Turnbull's protein skin tests, and to have Dr. Oliver Stansfield's watchful eye on the urine when the symptoms suggested a recurrence.

The writer's cases were all first born, or only children of neurotic parents (professional men, newspaper men, manufacturers, trained nurses, etc.) or people undergoing continual mental strain coincidental with an indoor life and little relaxation. The mothers were almost without exception of extremely nervous temperaments, although they made brave efforts not to show it; many of the babies came late in married life. The common age was from 10 to 20 months; however, the age may extend even to ten years.

Another striking characteristic of those precocious infants and children was the vice of a lithemic or rheumatic inheritance to live down. Some near relative, usually father or mother, or both, gave a history of rheumatism in some form,—articular, muscular, sciatic, rheumatic fever, asthma, hay fever, eczema, urticaria, multiple furunculosis, or carbunculosis.

Frequently the history is obtained of the mother having had impaired renal function during the latter part of pregnancy extending into parturition or the early nursing period.

In a recent case of a little girl of four on whom Dr. Turnbull did the protein skin tests, the mother has diabetes mellitus.

These babies have a defective sugar or fat metabolism or are more or less sensitive to certain food proteins such as those in eggs, cow's milk, wheat, oats, acid fruits, potato, rice, chicken, etc. As goat's milk is not as common a food as cow's milk, and the parents not having used goat's milk, there are less chances of sensitization. Since the protein in Nestle's Food has been desensitized this may be used as a temporary expediency in the strength of five tablespoonsful to twenty ounces of water.

The attacks may be due to giving excessive fat, with resulting abnormal acids and diminished alkali bases in the blood stream. Or, as in the writer's cases there has been little relationship to diet, most of the little patients have been fed most carefully and by painstaking mothers, fearful of dietetic errors; the attacks strike an apparently well baby out of a clear sky, the stools being at first macroscopically normal in appearance.

However, there is usually some match that sets off the powder keg, quite ready to explode anyway,—such as dentition, acute cold, constipation, too long an auto ride, or most any slight acute febrile disorder.

Whether the increasing frequency observed in Worcester of this type of acidosis is due to the effect produced on parents by the many frets, worries and difficult problems arising out of the Great War and the H. C. L., or whether it is due to the very rich milk most of these babies have been taking, because quite the majority have been on certified milk testing at least four per cent. fat, whereas the common family pasteurized milk of the same producers is from black and white Holsteins where the fat is around 3.5%, both of these causes doubtless play a part.

Babies and children of a neurotic ancestry and of lithemic diathesis tend to periodic attacks of vomiting. This is due to disordered fat and carbohydrate metabolism, as well as to sensitization to certain definite food proteins to be found out by skin reactions, or even more important, to experimentation with the foods themselves.

The best way to meet the attacks is by stopping everything by mouth and by giving one or two cleansing irrigations daily of soda bicarb.; and glucose or dextrose in solution by rectum; for the interval, elimination from the diet of all proteins to which the baby is sensitive until the baby desensitizes itself, or is desensitized; also a low fat and sugar intake.

It is essential, when nearing the cycle, or when the slightest symptoms recur, to watch, or, better still, to have the urine closely watched by a physiochemist, so at the first warning, a sufficient quantity of soda bicarb. may be given to neutralize the urine or to render it alkaline.

It is important that these precocious children have long hours of sleep, and play alone out of doors as much as possible.

Dr. John Watson, of Anderson, S. C., informed the writer at Dr. Maynard Ladd's clinic last week, that out of nine appendectomies done in Baltimore on infants with recurrent vomiting he was told seven had no recurrence; the evidence for operating came from x-ray studies of the appendix and intestines. In answer to a letter of inquiry, Dr. John Howland, pediatrician-in-chief to Johns Hopkins, has just sent me the following letter:

"I have never believed that true recurrent vomiting was caused by a disease of the appendix. I have never studied cases of recurrent vomiting by means of x-ray pictures of the intestines, and I don't know that appendectomy gives complete or permanent relief."

PREVENTIVE MEDICINE AS APPLIED TO THE INDIVIDUAL.

BY J. P. BILL, M.D., DR. P.H., BOSTON.

PREVENTIVE medicine shows in its history several successive stages. As first applied, it was desired to ward off the introduction of certain communicable diseases into the country. The idea later broadened to prevent the incidence of other diseases in the state. With further development of the subject, the city received attention, and finally the so-called rural districts. The mechanism for preventing disease is such that groups of individuals have been protected by other groups of specialists, highly trained to conserve the public health. By the latter group the individual has been indirectly affected, for if the chances for the spread of disease be minimized, the greater number of people will obviously remain well. There still remains the individual as a problem in preventive medicine.

That problem is best solved by the individual physician rather than by the public health officials, because of the personal equation, and for other reasons. This article is an answer to several inquiries as to "the kind of patient," and "what to do for him."

In order to understand more clearly the type of patient, a classification of disease sometimes encountered is helpful. In it, for convenience, diseases are divided into those which are

1. Communicable, as tuberculosis;
2. Occupational, as aniline poisoning, and
3. Functional or organic, as diabetis.

Classes 1 and 2 are termed preventable inasmuch as the environment of the individual can

be so controlled as to prevent his becoming affected by them. By the accepted methods of quarantine, dust removal, etc., functional disturbances cannot be controlled. Moreover, by these measures the personal element is entirely lacking. The patient troubled with *dis—ease* can be helped by preventive medicine through comparatively simple measures.

Every physician encounters cases whose symptoms may suggest a known clinical condition, but in whom the accepted tests together with the diagnostic signs and symptoms lead but into a blind alley. Many of these cases have been driven from pillar to post seeking relief without success. Their functional disturbance continues to manifest itself until, pitifully enough, organic changes occur, or the individual is actually incapacitated and the *dis—ease* has become *disease*. The condition then automatically leaves the realm of preventive medicine for that of curative.

One of the outstanding features of this kind of work is the apparently complete lack of "perfection" in man or woman. As individuals are examined one or more defects either functional or hygienic, manifest themselves. It may be said in fact that from the standpoint of preventive medicine, perfection in the individual is impossible of attainment. The reasons for this absence of the "ideal" are many. The following are a few of them.

1. Faulty intrauterine development.
2. Dietary indiscretions in infancy or maturity.
3. After effects of communicable disease.
4. Faulty development to and after puberty.
5. Familiar tendencies toward body weaknesses.
6. Lack of proper exercise.
7. Faulty posture.
8. Faulty daily habits.
9. Faulty musculature.
10. Endocrinopathic conditions.
11. Mental states; worry.
12. Lack of recreation.

There is always the possibility of faulty intrauterine development. The factors responsible for this condition are without the possibility of discussion in an article of this kind, nor, indeed, are many of them known. Some of the results of such faulty development may be remedied by surgical or other means. By far the larger number of patients, however, must be accepted as so many imperfectly designed machines and their functional limits determined and pointed out. The application of eugenics to succeeding generations will undoubtedly do much to lessen the number of those who are physically or functionally handicapped at birth.

Another problem entering very largely into the question is that of dietary and other hygienic indiscretions in infancy and childhood. Not the least important phase of the problem at this stage of bodily development is infant feeding.

With the growth of the child comes the period of school life. In the past parents and physicians were wont to regard the "children's diseases" as necessary evils, and indeed there are those today who still maintain this faulty position. The idea that one's child "may as well have the measles and get them over with" is a deplorably incorrect one and is still existant. The more conservative attitude is to assume that all diseases, irrespective of kind, may actually do permanent damage. In many individuals as seen at the present time, therefore, the after effects of communicable disease in childhood may well be suspected of being at least partly responsible for bodily disfunction.

A young and growing human body, like that of a plant, is susceptible to considerable moulding both in posture and habit. Faulty training in youth is in both subjects bound to leave its mark at maturity. Too close attention to books on the part of the school child, or too close application to work in the industries in the early decades of life, will have its effect in later years. For example, the very number of types of school desks and chairs shows that, while the idea has been before the attention of school hygienists for some time, this particular problem affecting the maturing child has not been satisfactorily solved. Again, many children have mentalities which fit them for a consistent mental development along with that of their schoolmates. Their bodies, however, may not be sufficiently sturdy to develop concomitantly. We are all familiar with the child who "had to stay out of school a year because he wasn't strong enough to continue."

Closely related to the above is the hereditary or familiar tendency toward bodily weakness. The broader viewpoint is to assure that, just as it has been shown that a familiar tendency to-

ward tuberculosis may be inherited, so may a tendency toward faulty endocrine activity, toward "weak heart," or poor eyesight, or any one or more of a dozen other bodily weaknesses.

Perhaps the most striking one single factor manifesting itself to the student of the subject is the result of a lack of proper exercise. This is just as true with the housewife or child as it is with the professional or business man of sedentary habits. Many there are who, with the means at their disposal or through the wisdom of experience, resort with delight to horseback riding or golf, with the fond idea that they are getting sufficient exercise, when the examination will disclose a badly relaxed abdominal wall with its accompanying train of varied digestive disorders. Further careful inquiry into the patient's life will show evidence of faulty diet, posture and daily habits, correction of which will make, in frequent instances, for a profound change for the better in his condition.

Another factor is worry. Irrespective of whether the patient is shunted from his rut of worry by direct suggestion, autosuggestion, or downright bullying, he cannot be long kept from sliding into it again, unless his body functions be brought back more nearly to normal. A healthy body makes for a healthy mind and vice versa. Until body processes be favored toward normality, abnormal mental processes or lines of thought stand a good chance of remaining *in statu quo*.

Disturbances in the ductless glands may occur at any period of life. So little is known about their interrelation that but little can be done at present to affect them directly, and but little more through such means as a proper daily regimen. To those suffering from ductless gland disfunction as well as with certain mental conditions, medicine, preventive or otherwise, has little to offer.

The term "normal" as applied to the individual is capable of varied interpretation. Perhaps most of us associate it in synonymy with the word "well." Both are possible of a wide variety of definitive detail. Certainly to the physician of average training a normal person is a well one. We will do well to keep in mind that health or at least well being is possible though the body be far from ideal in function or makeup. Normality rather than being represented by a sharply drawn average on each side of which individuals are classified, should be thought of as a zone wide enough to include the adult, short of stature, of slight muscular build and demanding but little food, as well as the person who tends to corpulency, who is possessed of a huge framework, and who eats considerable food. As well try to make either type into the other extreme, as to gauge either according to the standards of ideal weight or height and other expressions of the so-called average. Each type is distinct, and providing their body functions are within proper limits, each type can be considered a "well" individual.

The limits of functional and emotional activity consistent with health are broad. Continued recourse to heavy diet, for example, on the part of an adult of sedentary habit will very likely show results not found in an individual who earns through use of his muscles. The latter, too, may use his arms and legs at his work, and need only exercises to strengthen his abdominal muscles, while the former may need, in addition, exercises to strengthen other parts of the body. The latter's change in environment in doing his work may provide sufficient to serve as relaxation, while the former may find it necessary to shorten his business hours in favor of recreation. Blanket dicta for all persons will not produce the desired state of well being. The needs of each particular individual will be apparent only through individual study.

All medical students from the time of their matriculation have their attention directed to pathological conditions. They are taught disease, its pathology, symptomatology and treatment. No attention is paid to conditions of dis-ease, where organs may be pathologically negative, though abnormally functioning. What the physician learns of personal hygiene and its effect on disfunction is usually acquired after he has graduated.

As I look back over the limitations of my own training along this line, I can see in the light of my present experience a decided need for instruction in regard to normality and its limits, in the essentials of dietetics, in the physiology and forms of exercise, and in the functional effects of faulty posture from the standpoint of the internist rather than that of the orthopedic surgeon. All of these, together with the principles of proper daily habits, are at

present left to the physician to pick up as best he can.

The above represents in a general way the type of material presented to the student of individual preventive medicine, as well as some of the problems as I see them.

The next point is how to find out the individual needs. Two lines of study are necessary. The first is the customary physical examination. The custom of many practitioners is to let alone organs or systems not clamoring symptomatically for attention. I have found it best to adopt as a routine on every patient a thorough examination, for by it are discovered many pertinent facts bearing on the patient's condition which would otherwise be missed. I use a printed form in order that nothing may be forgotten. On it are sections referring to various systems and organs in the body, each qualified by printed adjectives in such a way that a simple underscore or other mark will tell the most complete story in the shortest time. Even so, an examination of this sort never takes less than an hour. If a question arises in regard to cancerosis, a gynecological condition, or dental pus pockets, for example, the patient is referred to a recognized specialist for diagnosis and report, or for correction. In this respect the patient derives the benefit of so-called group study if it be necessary. The examination is as complete as possible in regard to both physical as well as clinico-pathological findings. Laboratory tests are confined to those of practical value, though special determinations are made as they appear necessary.

The second is a printed sheet of questions inquiring into the details of the patient's daily habits in regard to food, drink, exercise, and other matters. This is filled out by the patient. When both are complete, and urine and other samples have been examined, the examiner is in a fair way to determine what factors are probably responsible for the patient's being below par.

Instruction rather than advice is then given, based on the patient's records. The work is largely educational in character, for I have found a much greater degree of intelligent cooperation providing the mechanism responsible be explained. Moreover, without this educational feature I found it more difficult to boost the patient mentally from the minor cadence of illness and hopelessness into the dominant major of a will to get well and stay well. At this time or a little later, then, all the various factors of diet, posture, exercise, etc., are successively explained, together with my interpretation of the patient's limitations so far as body functions are concerned.

I ask patients to feel free to use the telephone or a letter in event of any question needing help for solution. It has been found that this procedure is useful in clearing up minor but important points for which a visit is unnecesary. The patient in addition feels that some one is continually backing him in his fight back to well-being.

A few weeks after the examination, the patient is told to come in for supervision, after which, in most cases, visits once or twice a year tend to keep him along the proper road. Frequently he is told to report annually for reëxamination, by which a better check is kept on his or her body tendencies. He is instructed that in cases of any acute condition, he must consult his family physician.

In the industries this type of medical work has its analogy in efficiency engineering. Machines receive a periodical inspection and overhauling. Their rate of most efficient production is carefully determined. No machine ever constructed ever suffered the fate of the one-hoss shay. Invariably one or more parts show definite signs of wear and tear. An obviously weakened part, to the careful operator, means cautious use of that machine till the wornout member can be replaced. The human machine, on the other hand, must keep on running despite its weakened component. By tutoring the individual in the limitations of his own mechanism, a breakdown can be prevented and dissolution deferred.

Constructive and corrective work therefore is done through the means of periodical inspection and personal instruction, along the lines of exercise, posture, diet, and daily habits. Any one of these topics presents a truly great range of possibilities for good. In the case of diet, *e.g.*, many cases are brought back to health through it alone. Meat to some people acts as a poison. Whether the cause be intestinal absorption, the presence of proteolytic bacteria or some other phase of protein digestion is beside the point. These individuals escape the heavy, morning-after effects by substituting almost entirely some other form of nitrogenous food in their diet. Again, the question of ubi-

quitous constipation cannot be solved by entirely disregarding diet.

In their sex lives, patients show an appalling amount of ignorance not only in regard to the venereal diseases and their effects, but because of the familiar ostrich-like attitude of parents. The marital unhappiness due to this one factor alone is striking, as is well known to those who have made the sex question a study.

The effect of posture on visceroptosis and its attendant ills of pelvic and intestinal disfunctioning is another field in which much constructive as well as corrective work can be done.

These are a few instances of the possibilities of preventive medicine for individual betterment.

It may be truly said that this phase of medical endeavor embraces all ages and walks of life. Its possible application commences even before the birth of the individual—with the prospective mother. Many physicians follow the kidney activity of the mother, attend delivery, and shortly cease their efforts. After the birth the mother can receive distinct benefit from instruction directed toward restoring tone to the relaxed abdominal wall, while problems are encountered in infant life which may be cleared up to the advantage of both mother and child.

Much depends on sturdy development in the first few years of life, and the number of families who make a mess of things because of half knowledge is worthy of comment. Instruction with regard to minimizing contact with the communicable diseases of childhood, so far as possible, also serves a useful purpose. The child's even development in school and sex hygiene have already been mentioned.

Frequently people about to be married present themselves for examination.

In adult life, man usually applies himself to his work with considerable diligence. Woman, on the other hand, leaves her premarriage occupations and diversions and finds that her matronly duties require most of her time. In either event too much attention is usually given to the business in hand, and in most cases very little to the physicism enabling that business to be a success. We all know the business man who has directed all his efforts to his work, who has applied efficiency methods throughout his office or factory, and who in after years realizes that he has not the driving power with which he was blessed in his younger days. To this man and to the woman buried in her family duties life holds but little of enjoyment. They are not 100% efficient so far as their own body machines are concerned. Tonics and other medicines in a majority of these cases bring about no permanent change. A thorough overhauling and inspection, from crown to toe, and from morning until the next morning, are necessary before the physician is in a position to understand the trend of body function and to advise intelligently. Diagnoses, as we now accept the word, are impossible to make. In most instances functional derangement will have been found, for which as yet there is no name which will recall that particular physical picture in its entirety. Verily, had preventive medicine been applied to the individual years ago, Osler would not have made the remark credited to him.

In old age, where so frequently one function slows up to the ultimate upheaval of others, an inquiry of this sort helps greatly to restore peace of mind as well as well being. It is apparent, then, that this field of activity for preventive medicine is unlimited by sex, age, or vocation. Truly, the term "family physician" acquires a new meaning in its light.

It may be argued that few people are intelligent enough to think of these things, but in my experience the wisdom of being told how to live and to be put in a position to enjoy life is as much appreciated by the day laborer as it is by the president of the company that hires him. The value of this line of work is as much appreciated by the parents of a sickly five-year-old child as it is by the septuagenarian.

There are, to be sure, people who believe it folly to be wise. I can think of two women to whom the word cancer called to mind a hideous picture. One had a lump in one breast, while the other had a suspicious discharge. Neither of their husbands could get them to undergo examination by specialists. As a result, one is dead at an early age of a widely disseminated mammary carcinoma, while the other is being tortured by a hopeless uterine neoplasm. However, people of such a turn of mind are very much in the minority, and I have been struck with the number of casual acquaintances to whom at once the wisdom of a periodic physical and hygienic examination appeals very strongly.

Through the efforts of our various agencies for health with their campaigns for public education, the number of individuals who appreciate the value of such supervision as I have outlined is daily increasing.

The success of my own endeavors leads me to believe that there is a decided need for specialists in this line.

THE QUESTION OF DRAINAGE IN CHOLECYSTECTOMY.*

By John T. Bottomley, M.D., F.A.C.S., Boston.

This brief communication is presented as the forerunner of a more extensive future paper which will be based on a wider experience in the field under consideration. It is offered now because it represents the first results of a change made in my surgical practice and because I desire your comment on and criticism of the matter in question.

It will be granted, I assume, that where drainage is contraindicated or inadvisable its use is either harmful or unnecessary. For the past decade or two the tendency has been to limit or to do away entirely with the use of drainage in abdominal cases. We may cite as witnesses the facts that not a few surgeons now use no drainage after reasonably early operation for perforation of a gastric or duodenal ulcer, that many men no longer use drainage as a means of carrying off the serous effusion accompanying acute appendicitis and that many pelvic cases now go undrained which would certainly have been drained some years ago. Most of us older men can remember the days when abdominal drainage meant huge wads of gauze packing sticking out of the abdominal wounds and making necessary great suffering and often serious shock in their removal. To-day a split rubber tube carrying gauze, or a cigarette drain suffices in most instances. It is in the field of biliary surgery that we have made relatively little change in our methods of drainage. Crile, it is true, has called attention to the fact that it is not necessary to drain the common duct after the removal of stones, provided that one is sure that the duct is patent. "Why drain a drain?" he tersely puts it. His advice and example have led others at least to consider the advisability of keeping drains out of the common duct whenever that procedure seems wise, and I think it has seemed wise in a gradually increasing number of cases. Yet it is in the more simple and the less threatening part of the field of biliary surgery that the use of drainage has been continued almost without exception and without much change in method for many years. Occasionally a gall bladder was explored or a few stones removed from it and the gall bladder was closed at once. This practice, however, was so rare as to be almost negligible. I can see a good reason for its non-acceptance as a routine measure even in simple, uncomplicated cases, because a satisfactory exploration of the interior of the gall bladder is practically impossible without removing it and one fears to shut in the unknown which may, perhaps, be dangerous. However, it seems to me that in the matter of cholecystectomy we have held sacred for too long a time the need of drainage. I feel that in a very large number of these cases drainage either might be entirely dispensed with or might be provided for a far shorter time than was usually customary. Late in December I began to close many of my cholecystectomy cases tightly without drainage of any kind and it is the object of my brief communication this evening not only to call your attention to this practice but also to note its results. Of course, the disuse of drainage means careful dissection and separate ligation of the cystic duct and the cystic vessels and careful hemostasis applied to the bed of the gall-bladder in the liver. The cystic duct and the cystic artery have always been tied separately with No. 1 chromic catgut, the stump of the cystic duct has always been sterilized and its end protected by a tab of fat from the neighboring gastrohepatic omentum. The deep field of operation has usually been cleansed with gauze saturated with ether. The folds of peritoneum dissected off the gall bladder need not be sutured over the denuded area in the liver but may simply be laid on it. Slight oozing in the liver is controlled by hot packs applied temporarily or by laying omentum against the oozing surface. I have regarded moderate persistent oozing that I could not entirely control as a contraindication to the disuse of drainage; in such instances, drainage has been provided for a few hours (24-36). Cases, too, in which there has been a good deal of soiling from an apparently infected gall bladder should be protected by drainage.

* Read at the meeting of the Boston Surgical Society, April 5, 1920.

In the last three months I have done fifteen cholecystectomies without providing drainage of any kind. One patient died; she was a fat, elderly woman, with a huge umbilical hernia which had been long incarcerated and had occasionally given rise to bothersome symptoms. In the course of the operation I found a contracted gall bladder full of stones and very adherent to the duodenum. I finished the operation for the umbilical hernia and then foolishly, through another incision, removed the gall bladder. There was an old perforation between the gall bladder and the duodenum which necessitated a suture of the duodenum. This patient died, probably of peritonitis, on the third day. The other fourteen cases were eminently successful from every point of view. In one case a small hematoma of the abdominal wall was opened at the end of the first week and healed immediately. In another case in which I did a cholecystectomy for a persistent sinus following a previous cholecystectomy, a little serum was evacuated from the top of the wound on the thirteenth day, though I drained the abdominal wall temporarily because of the presence of the sinus. These cholecystectomies were done for cholecystitis both acute and chronic, both with and without stones. In five other cases a cigarette drain or a bit of rubber dam was left in for 24 to 36 hours and then removed. These cases also did very well and the wounds healed kindly. These twenty cholecystectomies have been done with no drainage or one of short duration. There has been absolutely no leakage of bile and the convalescence has been very comfortable.

These cases represent exactly two-thirds of my biliary surgery during the time in which they occurred.

I was led to the adoption of this procedure by the fact that a good portion of my operative wounds in biliary surgery, especially in fat people, became somewhat infected after draining for several days and that some developed troublesome hernias after operation. It is almost impossible to keep clean a wound drained onto the skin. These wounds often become infected despite all care and a weak abdominal wall is the result.

I realize that twenty cases are far too small a number from which to draw a general conclusion. I am working with an open mind and am just as willing to discontinue this practice, if I find I am subjecting patients to undue risk, as I am to continue it, if things go well. If the disuse of drainage is safe in most of the cases of cholecystectomy, certainly drainage should be done away with. As with all other things in surgery, the matter requires judgment; it requires judgment to know whether or not to drain after an operation for appendicitis. It is no different in the field of biliary surgery.

Medical Progress

REVIEW OF RECENT LITERATURE ON TUBERCULOSIS.

By John B. Hawes, M.D., Boston.

The amount of literature published during the past year or more on the general subject of tuberculosis is enormous. It is manifestly impossible to review or even to refer to each article on this subject. I have, therefore, confined myself to what appear to me to be the more important ones. These articles naturally fall into certain groups, chief among which are: (1) Tuberculosis and the War; (2) Tuberculosis and Influenza; (3) The Framingham Experiment; (4) The Tuberculosis Campaign, and (5) Miscellaneous Articles on Tuberculosis.

TUBERCULOSIS AND THE WAR.

Before we entered the war, alarming reports reached this country concerning the enormous amount of tuberculosis among the French troops and the distressing frequency of exacerbations of this disease due to war conditions. Bushnell (*J. A. M. A.*, June 18, 1918, Vol. LXX, No. 24, 1821), in a careful article, was among the first to point out the exaggeration in these statements. France apparently lost the services of nearly 80,000 men on account of a wrong diagnosis of tuberculosis. Miller (*Rev. of Tuberculosis*, August, 1919, Vol. III, No. 6) confirms Bushnell's statements and gives a clear picture of what the tuberculosis problem in Europe really amounts to. Hatfield (Boston M. & S. J., June 20, 1918, Vol. CLXXVIII, No. 25, 863) reviews this subject from the American viewpoint with special reference to the soldier rejected on account of this disease. Badnel & Mendes (*Policlin.*, May 26, 1918, Vol. XXV, No. 21, 492), and Maragliano (*Rif. Med.*, April 27, 1918, Vol. XXXIV, No. 17, 332) describe this subject as it appears among Italian troops.

Trudeau (*J. A. M. A.*, Sept. 7, 1918, Vol. LXXI, No. 10, 818), Matson (*N. Y. M. J.*, Aug. 3 and 10, 1918, Vol. CVIII, No. 5 and 6, 199 and 294), Otis (*Med. Res.*, July 13, 1918, Vol. XCIV, No. 2, 47), and Burns (*J. A. M. A.*, Aug. 3, 1918, Vol. LXXI, No. 5, 373) describe the methods employed in various American camps and cantonments for the examination of troops for tuberculosis and the diagnosis of this disease. Twitchell (*Southwest M.*, July, '19, Vol. II, No. 7, 6) reports favorably in regard to this problem. He finds that the quiescent lesion does not tend to become active under the conditions of army life in America. Fitz and Cunningham (*A. J. Med Sci.*, Sept., '19, Vol. CLVIII, No. 3, 328), on the other hand, report that tuberculosis was nearly three times as common among American as among British troops and that recurrences and flareups were very common among American troops shortly after going abroad. Elliott (*Rev. of Tub.*, Jan. '19, Vol. II, No. 11), discussing errors in diagnosis, again refers to the mistakes made by the French early in the war, stating that out of 86,000 troops discharged from the French army for tuberculosis, later examination showed only one-fifth to be really tuberculous. Stewart (*Am. Rev. of Tub.*, Vol. II, No. 6, Aug., '18), of the Ninette Sanatorium, Manitoba, likewise comments on this and reports that of the soldiers sent to his institution on account of tuberculosis, 28% were classed as non-tuberculous. Parfitt of Gravenhurst goes so far as to say that 40% of returned soldiers coming under his observation were non-tuberculous. In contrast to this, in its editorial comment (Aug. 30, '19, Vol. LXXXIII, No. 9, 696) the *Journal of the American Medical Association* states that the War Risk Insurance Bureau has a record of more than 3,000 cases of tuberculosis out of a total of 7,103 disease cases under its care. Pritchard (*Miss. Valley M. J.*, Oct., '18, Vol. XXV, No. 10, 295) urges x-ray examination along with clinical in detecting tuberculosis in soldiers; Bissell (*Am. J. Roent.*, Oct., '18, No. 9, 468) likewise considers the x-ray of first importance. Matson (*J. A. M. A.*, June 28, '19), and Manton & Maingot (*Bull. de la Soc. Med. des Hosp.*, Oct. 11, '18, Vol. XLII, No. 28, 914) in sane articles point out the limitation of the x-ray in diagnosis of pulmonary tuberculosis. Hawes (BOSTON M. & S. J., Oct. 23, '19, Vol. CLXXXI, No. 17, 499) goes into the details of the army tuberculosis problem as it appears in Massachusetts and is of the opinion that the war problem is no different from the peace problem as far as tuberculosis is concerned and that the solution depends on early diagnosis, thoroughness and utilization of all available resources and particularly common sense. Baldwin, W. H., (*Rev. of Tub.*, Aug., '19, Vol. III, No. 6) summarizes the entire subject in an excellent article. From my own experiences in this subject as consultant in lung diseases to the Public Health Service in Massachusetts and from the large numbers of men seen either at the Massachusetts General Hospital, as well as privately, I should agree strongly with Elliott, Stewart, and Parfitt, quoted above, that errors in diagnosis are extremely common; that any abnormal pulmonary condition is apt to be called tuberculosis; that the effects of gassing, trench and barrack bronchitis and influenza are all often mistaken for and designated as tuberculosis.

TUBERCULOSIS AND INFLUENZA.

When the influenza epidemic first swept over this country in the fall of 1918, physicians everywhere, and particularly those whose practice dealt largely with pulmonary tuberculosis and other diseases of the lungs began raising the very pertinent and important question as to the effects of influenza on active and inactive tuberculosis. There were two opinions in regard to this,—one a small group who believed that tuberculosis patients possessed a degree of immunity against this new respiratory tract disease, and another,—a large group, who looked for (and who found) direful results among their lung cases who had influenza. Fishberg (*Rev. of Tub.*, Nov., '19, Vol. III, No. 9) was the champion of those holding the first viewpoint. He states as follows: "I have not met a single case of phthisis during the past year which could be ascribed to have followed influenza." "It is not to be considered as a reactivator of dormant tuberculous lesions." "Tuberculous processes in the lungs have not been observed to assume an acute or progressive course after an attack of influenza." "The pulmonary sequelae remaining after influenza are almost without exception non-tuberculous in character and do not require the treatment accorded to phthisical patients." These statements, quite characteristic of Fishberg, radical in the extreme, would be approved by practi-

cally no one at present. There were not a few, including myself, who were surprised at the fact that the incidence of influenza at state institutions for consumptives was vastly less than that in other institutions for non-tuberculous patients and who were still more pleasantly surprised at the excellent manner in which patients with pulmonary tuberculosis passed through severe attacks of influenza. (Hawes, *Clinics of North America*, April, 1919.) We felt that a wave of needless alarm was spreading over the country and that countless errors in diagnosis would be made and injustice done to innumerable patients should it be taken for granted that influenza necessarily reactivated and made worse a previously existing influenza. None of us, however, would for a minute agree with the extreme statements above quoted. Permin (*Ugeskr. of Laeger*, Oct. 31, '18, LXXX, No. 44, 1739) states that tuberculosis is aggravated by influenza; that the tuberculous patient must be kept away from this disease and that there will be an increase of tuberculosis following it. Berghoff (*Am. Rev. of Tub.* Aug., '19, Vol. III, No. 6) reports that 50% of his cases showed reactivation influenza; Stirelman (*N. Y. M. J.*, July 5, '19) found that influenza did remarkably little harm to the consumptives under his care; Tewksbury (*Am. Rev. of Tub.*, Aug., '19, Vol. III, No. 6), in his series of 64 cases feels that every one was lighted up by influenza; Anderson and Peters (*Am. Rev. of Tub.*, Aug., '19, Vol. III, No. 6) feel that tuberculosis patients have no immunity against influenza and that numerous exacerbations are due to it. Blasco (*Med. Ibera*, July 20, '18, IV, No. 37, 54) is of the opinion that nearly 50% of cases are made worse following influenza. Horman (*Southwest Med.*, Nov., '18, II, No. 11, 13), in his sanatorium had only a small number of influenza cases among his patients. This he attributes to the fact that tuberculous persons possess a certain immunity against this disease. Wilson (*Lancet*, Jan. 25, '19) speaks of post-influenzal hemoptysis and urges that while the patient should be followed closely, one should not be in too much of a hurry to call it tuberculosis. Recently I wrote personal letters to fifteen or twenty of the leading specialists in tuberculosis and diseases of the lungs in this country in regard to this matter. While there was a great diversity of opinion as to *how much* harm an attack of influenza did to a consumptive, there was a unanimity of opinion that it did harm and was in every case a serious complication. This is a sane way in which to regard it.

THE FRAMINGHAM COMMUNITY HEALTH AND TUBERCULOSIS DEMONSTRATION.

This experiment, or rather demonstration, now being carried on in Framingham, Massachusetts, is being conducted by the National Tuberculosis Association and financed by the Metropolitan Life Insurance Co. It aims to answer the following questions: 1. Is it possible to discover and to place under adequate medical, nursing and relief supervision all of the cases of tuberculosis, incipient and advanced, in a normal industrial community? 2. Is it possible to ascertain with some degree of definiteness the responsible social and economic factor in disease causation, including all types of morbidity, not only tuberculosis? 3. What is the most efficient utilization of the existing means available for the discovery and treatment of disease? 4. What percentage of theoretically preventable disease is practically preventable with the use of known but unused or at least uncoördinated instruments? 5. What is the best possible adjustment of social forces, existing or to be created, with the objects of the prevention of unnecessary disease and death?

The answer to these questions, as is evident at a glance, are of far reaching significance. What has been done to solve these problems with details of methods and means employed are described in detail by Dr. Armstrong, Executive Officer, and by Dr. Bartlett, Medical Director, as well as by the Committee of the National Association in charge, in the various articles, reports, bulletins, etc., listed below.

1. Armstrong, D. B. (Trans. 13th Meeting Nat'l Tub. Assoc.)
2. Armstrong, D. B. (Trans. 14th Meeting Nat'l Tub. Assoc.)
3. Armstrong, D. B. (*Jour. A. M. A.*, Nov. 2, '18, Vol. LXXI, p. 1459.)
4. Armstrong, D. B. (*Framingham Monograph*, No. 4, Nov., '18.)
5. Armstrong, D. B. (*Framingham Monograph*, No. 5, March, '19.)
6. Armstrong, D. B. (*Mod. Med.*, Nov., '19, p. 633.)
7. Armstrong, D. B. (*Bull. Nat'l Tub. Asso.*, July, '19, No. 10.)
8. Armstrong, D. B. (*Bull. Nat'l Tub. Asso.*, Oct., '19, No. 13.)

9. Armstrong, D. B. (*Bull. Nat'l Tub. Asso.*, Jan., '19, No. 4.)
10. Armstrong, D. B. (BOSTON MED. & SUR. JOUR., Aug. 28, '19.)
11. Bartlett, P. C. (*Interstate Med. Jour.*, Vol. XXV, No. 7.)
12. Report of Com. on Appraisal, etc. (*Am. Rev. of Tub.*, Nov., '19, Vol. III, No. 9.)

DIAGNOSIS.

Very little that is new has been added to our knowledge of diagnosis. The fundamental principles of taking nothing for granted, thoroughness, and not jumping at conclusions have been emphasized.

McCrae & Funk (*Jour. A. M. A.*, July, '19, LXXIII, No. 3, 161), out of 1,200 admissions for advanced tuberculosis found 6% to be non-tuberculous. Lack of thorough examinations and neglect of sputum tests are the chief causes of mistakes. Slade (*Monograph*, No. 19, Dept. Health, N. Y. City, Dec., '18) wisely emphasizes the fact that it is far more unjust to the patient to make an incorrect positive diagnosis than to make an incorrect negative one. His views follow closely the Standards for Diagnosis and Treatment adopted by the National Tuberculosis Association. Philibert (*Progr. Med.*, May 10, '19, 179) calls attention to three valuable tests: (1) Provoked expectoration by means of expectorants; (2) Injection of 50 cc. of normal salt solution and watch for a subsequent rise in temperature, two to eight hours later, and (3) Temperature after exercise. Ochsner (*Med. & Surg.*, Nov., '17, I, No. 9, 982) places first in diagnosis the physical examination; second, a careful history. In nearly 50% of cases x-ray examination gave no help. Nicholson & Goetsch (*Am. Rev. of Tub.*, April, '19, Vol. III, No. 2) describe their test to differentiate early tuberculosis from hyperthyroidism. The test depends on the constitutional sensitiveness of the patient to adrenalin. If the condition is due to hyperthyroidism he will react to adrenalin, while in tuberculosis there will be no such reaction as shown by rise in blood pressure. This test is an important addition to our knowledge on this subject.

TREATMENT.

In treatment, as well as in diagnosis, nothing new has been added. Emphasis has been increasingly laid on prolonged rest and exercise, when taken, standardized and carefully regulated.

Schaefer (*Colorado Med.*, July, '19), Pottenger (*N. Y. Med. Jour.*, July 19, '19), Thompson (*So. Med. Jour.*, Feb., '19, XII, No. 2, 61), Kinghorn (*Am. Rev. of Tub.*, June, '19, Vol. III, No. 4), Kahn (*Med. Res.*, Nov. 23, '18, XCIV, No. 21, 899) describe and discuss this subject. Pneumothorax has its ardent adherents. Gammons (BOSTON MED. & SURG. JOUR., CLXXX, No. 19, 523) urges that it be not left to a last resort but that its use should be considered in every case. Stolkind (*Brit. Jour. Children's Dis.*, Jan. & Mar., '19, XVI, Nos. 181-183, 18) advised its use in children as well as in adults. Cicconardi (*Ref. Med.*, Feb. 22, '19, XXXV, No. 8, 130) urges its use for hemorrhage; Stirchman (*N. Y. Med. Jour.*, Feb. 1, '19, CLX, No. 5, 187) warns of its dangers, while Parfitt and Crombe (*Am. Rev. of Tub.*, Sept., '19, Vol. III, No. 7) and Shortle (*ibid*) discuss its advantages and disadvantages. Heliotherapy is coming into greater use as its value becomes known. Mills and Forster (*Am. Rev. of Tub.*, Jan., '19, Vol. II, No. 11) describe use of condensed reflected sunlight in laryngeal tuberculosis with good results. Collin (*Ugeskr. f. Laeger*, Nov. 21, '18, LXXX, No. 47, 1841) describes its use for bone and joint tuberculosis; Blegvad, (*Ugeskr. f. Laeger*, Nov., '18, LXXX, No. 48, 1910) recommends it for laryngeal tuberculosis, either direct sunlight or Finsen rays being used. Sieria (*Med. Ibera*, Nov. 23, '18, V, No. 55, 183) calls attention to contraindications to its use, such as fever, heart disease, nervous disposition, tendency to hemorrhage and nephritis. Dixon (*Practitioner*, Dec., '18, CI, No. 6, 308) speaking in regard to sanatorium treatment, calls attention to the fact that it is simply one part of treatment and that it must not be blamed if, because of its effect alone, the death rate and care incidence do not fall. What he says is of the utmost importance. Rutledge and Crouch (*Am. Rev. of Tub.*, Feb., '19, Vol. II, No. 121) present an excellent summary of their results with sanatorium treatment. The use of tuberculin in various forms of non-pulmonary tuberculosis continues to produce good results. As pointed out by Hawes (*Internat. Clinics*, I, Series 28) it is of the utmost importance to remember that tuberculin is only one factor, more or less important as the case may be. In tuberculous eye conditions, however, tuberculin seems to be of special value; of this I can bear

willing testimony from numerous patients of my own, while Török (*Arch. Ophth.*, May, '19, XLVIII, No. 3, 242), Gardini (*Cronic. Med.*, Oct. 18, XXXV, No. 664, 293), and Paterson (*Am. Jour. Med. Sci.*, Feb., '19, CLVIII, No. 568, 198) confirm this opinion in regard to the treatment of tuberculous cervical adenitis. Hertz (*Ugeskr. f. Laeger*, Dec., '18, LXXX, No. 50, 1967) urges heliotherapy for this; Dufourmentel (*Presse. Med.*, Dec. 5, '18, No. 67-621) still believes surgery can produce the best results, while Abbot (*Am. Rev. of Tub.*, May, '19, Vol. III, No. 3) is an enthusiastic believer in tuberculin but only casually refers to removal of tonsils. It is a pity that more emphasis is not laid in the literature of this subject upon the fundamental importance of the following:

1. Removing foci of infection which in most cases will be found in the tonsils, *whether* or not on macroscopic examination they appear diseased.

2. Treat the patient who has the lumps in the neck and not the lumps alone.

3. Use all methods of treatment at your disposal according to the needs of the individual case,—conservative surgery, tuberculin, heliotherapy, x-rays, finsen rays, violet rays, etc.

THE CAMPAIGN AGAINST TUBERCULOSIS.

Palmer (*Jour. A. M. A.*, Sept. 27, '19, LXXIII, No. 13, 985) emphasizes the fact that our campaign against tuberculosis is intimately mixed with that for public health, and (*Am. Rev. of Tub.*, July, '19, Vol. III, No. 5) urges that we broaden our campaign. Lyman (*Am. Rev. of Tub.*, July, '19, Vol. III, No. 5) speaks for more coöperation; Hawes (BOSTON MED. & SURG. JOUR., July 25, '18, CLXXIX, No. 4, 123), in discussing the present needs of the campaign, mentions the following as essentials: (1) Knowledge as to how much tuberculosis there is; (2) Knowledge as to the existing means of handling it, and (3) Coöperation; and (19th Ann. Report, Canadian Tub. Asso., Oct., '19) describes certain methods that might be discarded and others that might well be used more than they now are. Raw (*Brit. Med. Jour.*, Jan. 25, '19, No. 30, 30-911), Porter (*Brit. Jour. of Tub.*, Reprint 112), and Fine (*Jour. of Med Soc. of New Jersey*, 1919) also speak well on this subject.

MISCELLANEOUS.

Brown, Petroff and Pesquera (*Am. Rev. of Tub.*, Dec., '19, Vol. III, No. 10) discuss the etiological factor in tuberculosis, such as dust of rooms, eating utensils, contaminated hands, saliva, kissing, tooth brushes, flies, coughing, etc. They conclude that kissing, eating utensils improperly cleaned may be dangerous factors, and that dust, flies, hands, telephone mouth pieces and properly cleaned eating utensils are not dangerous. Their investigations are of interest and importance.

Society Report.

MASSACHUSETTS THERAPEUTIC MASSAGE ASSOCIATION.*

MEETING at Hotel Brunswick February 17, 1920. Talk by Dr. Howard A. Moore on Massage in Orthopedic Cases.

Dr. Douglas Graham, President, in the Chair, opened the meeting by quoting the remark of Malgaigne, who said that massage was the soul of orthopedic surgery. Dr. Graham said it was not only the soul but a large part of the body also, now-a-days.

Dr. Howard Moore, in his opening remarks, said that he had prescribed massage in 50 per cent. of all cases treated at his office during the past three months. According to Dr. Moore, orthopedic physicians are in two main groups. Group 1 includes those who depend chiefly upon surgical braces and appliances, substituting artificial for natural support. Group 2 includes those who endeavor to preserve the greatest amount of normal function, using braces only when absolutely necessary and even then to be accompanied by suitable physiotherapeutic treatment. Those physicians who might be included in Group 1 are becoming fewer. Dr. Moore explained the changes which have come about in the treatment of fractures. The tendency of today is to shorten the period of immobilization and to apply early treatment for the restitution of function, believing the latter quality to be of greater imporance than the cosmetic effect alone. In Colles fracture the advantages of the palmar splint over the older, double-splint method was explained. Treatment with massage at the right time speeds the repair processes and in two or three weeks the part is fit for light work. In hospitals there is some indecision as to where the general surgeon's work and the orthopedic surgeon's work begin and leave off.

* Reported by Mr. Thomas Burns of Cains' Institute.

Infectious or septic joints, two classes, *a, b.*

a. Infection in the joint itself.

b. Bacteria not in the joint itself, infection elsewhere, supplying toxin.

It used to be a good practice to prevent movement of an infected joint, but now everything possible is done to preserve local tone, giving due consideration to the severity of the inflammatory action, but persisting in the manipulation of the joint to maintain function.

Dr. Moore told of his experiences in the orthopedic wards in France. In one ward reserved for joint injuries the treatment being given to septic joints included exercising the part, causing pus to ooze out. After a while the joint developed a tolerance. Movements at first painful but persisted in despite active process going on. Joints, which formerly would have been looked upon as certain to become stiff, became well.

Atrophic Joint Conditions. Bones whose lime salts, erosion of cartilage and fusion of bones occur, diminished transfer of nourishment.

Hypertrophic Joints. Irritation from temperature changes and exposure. Case cited. Worker in photographic dark room, fingers in cold water for long periods. Affected joints rigid and painful, limited movement.

Strains. Old treatment; fixation. Modern method—(ankle) stirrup strap—partial fixation, leaves some work to muscles of part, follow with massage and graduated movement and massage.

Adhesions. Between joint structures. Treatment, old method; anesthesia and forcible breaking up, generally requires repetition and results unsatisfactory. Modern method—Graduated massage; manipulation, tonic baths and careful stretching. Results usually good.

Poliomyelitis. Massage for long time at suitable periods. Persist in treatment for a year if necessary. Avoid stretching weak muscles. Delay surgical treatment until other methods are exhausted.

Case of Burns about Arms and Chest. Skin tense about chest, absorption of subcutaneous fat, blood supply diminished, elbows stiff from lack of motion during healing process. Treatment—Massage with oil. In three weeks more progress can be registered than could have been accomplished in five months under ordinary surgical procedures as carried out in former times. Case cited of man falling, cutting flexor tendons of hand with broken glass. Tendons sutured, healed clean, lot of scar tissue, adhesion of skin to subdermal structures, tendon flexion limited. Massage effected cure. Dr. Moore recommended early massage to prevent adhesions, but cautioned against irritation of scar tissue by too strong friction.

Abdominal Ptosis Cases. These cases usually are accompanied by disturbed digestion and deficient bowel actions; also malnutrition. Dr. Moore recommends light support, if necessary, and main treatment to consist of graduated exercise and massage. The accompanying effects of improved abdominal muscular tone are invariably shown through improved intestinal and general systemic function.

In all cases the observance of individual requirements as to the duration, frequency and strength of this treatment is of prime importance.

Dr. Herman Marshall spoke in defense of artificial supports and his remarks were appreciated and endorsed by Dr. Moore, who, however, made it apparent that not enough opportunities had been afforded the body to exert its qualities for self-restoration. Comparison between past and present methods bear out Dr. Moore's statements.

Dr. D. Graham thanked Dr. Moore for the Society for his highly instructive talk and also thanked Dr. Marshall for his contributory remarks.

A paper was read on the subject of therapeutic sea baths by Mr. Thomas Burns. Mr. Burns called the attention of the Society to a statement that moist heat has seventeen times the penetrating power of dry heat. Further comparisons of this difference are necessary.

Attention was drawn to a paper by Dr. Marshall on Orthopedic Braces, etc.

The subject of intestinal regulation through enemas was briefly discussed in its relation to ante- and post-surgical treatment.

Book Review.

The Crimes of the Oedipodean Cycle. By Henry Newpher Bowman. Boston: Richard G. Badger. 1918.

The myths of the Oedipodean cycle present a story unusual in its dramatic interest. The details relating to the history of this family, burdened with curse and tragedy, are contradictory and confusing, and little about them is generally known. To the classical scholar, curious to discover the continuity of events, this small volume, *The Crimes of the Oedipodean Cycle*, will be of value. The tale of Oedipus, who unwittingly slew his own father and married his mother, touches the depths of mortal misery and suffering. This book presents several variations of the myth and offers many helpful explanations.

This volume contains an interesting introduction, which expounds the theory of Freudian psychologists, who see in this story an allegory of the human race.

THE BOSTON
Medical and Surgical Journal

Established in 1812

An independently owned Journal of Medicine and Surgery, published weekly under the direction of the Editors and an Advisory Committee, by the BOSTON MEDICAL AND SURGICAL JOURNAL SOCIETY, INC.

THURSDAY, AUGUST 19, 1920

SUBSCRIPTION TERMS: *$5.00 per year, in advance, postage paid for the United States, $6.56 per year for all foreign countries belonging to the Postal Union.*

An editor will be in the editorial office daily, except Sunday, from twelve to one p.m.

Papers for publication, and all other communications for the Editorial Department, should be addressed to the Editor, 126 Massachusetts Ave., Boston 17. Notices and other material for the editorial pages must be received not later than noon on the Saturday preceding the date of publication. Orders for reprints must be returned in writing to the printer with the galley proof of papers. The Journal will furnish free to the author, upon his written request, one hundred eight-page reprints without covers, or the equivalent in pages in the case of articles of greater length.

The Journal does not hold itself responsible for any opinions or sentiments advanced by any contributor to any article published in its columns.

All letters containing business communications, or referring to the publication, subscription or advertising department of the Journal should be addressed to

BOSTON MEDICAL AND SURGICAL JOURNAL
126 Massachusetts Ave., Cor. Boylston St., Boston 17, Massachusetts

MATERNITY BENEFITS.

THE Commission appointed to investigate this question and to report their findings, together with any recommendations regarding proposed legislation, at the extra session of the Legislature next November have sent to all licensed physicians of Massachusetts a request for their opinions upon the subject and for answers to a *questionnaire*. If any have failed to receive this letter the Commission will consider it a great favor to be so notified.

Although the first question is, "Have you been engaged in the practice of obstetrics during the past year?" that does not at all mean that opinions are not wanted from all practising physicians irrespective of their specialties. The question of State Aid to mothers and their infants is of vital importance to the whole medical profession. And it is most desirable that this canvas of medical opinion shall be as complete as possible.

About one sixth of those to whom the *questionnaire* has been sent have already sent in their answers. Many valuable suggestions have been given. Were there any unanimity among the profession, the Commission's task would be far easier than it is. For there can be no doubt of the great influence that any decided majority, for or against the proposed legislation, will have both with the Commission and with the Legislature.

As president of the Massachusetts Medical Society I have been much perplexed by the opposite opinions of different districts and groups, and I am very desirous of ascertaining the opinions of all our Fellows.

In still another way physicians can give great help in solving our problem. The Commission is studying the causes of all the maternal deaths, and also of the infant death rate, in the State during the past year and a half. Besides from the tabulations of statistics, all possible information is also being sought from the families and physicians concerned. All of the present or possibly available Lying-In Hospital facilities are also being studied. These special field investigators in the employ of the Commission are already being greatly aided by the medical profession.

ALFRED WORCESTER, M.D.

BEGINNINGS OF HEALTH LEGISLATION IN PREHISTORIC TIMES.

IN the ancient laws of Manu, intermingled with religious and superstitious beliefs and regulations may be traced interesting beginnings of modern health legislation. Although the codification of these laws is comparatively modern, the ancient Hindu beliefs incorporated in them date back probably to several centuries before Christ. A recent article on this subject in *The Clinic* tells how the ancient sages, in order to receive an authorized and standardized statement of the laws best adapted to the needs of man, approached the Hindu god Manu and begged him to declare the sacred laws for each of the four castes. With the precision and philosophic inspection characteristic of Hindu thought, these laws were formulated. A number of them reveal the attitude of the ancients towards matters of health.

In the days when the laws of Manu were made, nothing was known about germs. Hindu

theology therefore explained the idiots, the dumb, blind, deaf, and deformed of their race as victims of sin committed in an individual's previous existence. Yet punishment was not always delayed until rebirth, for did not a gold thief have diseased finger nails, a slayer, consumption; a calumniator, foul breath; an adulterator, redundant limbs; a stealer of food, dyspepsia; a stealer of clothes, white leprosy, and of horses, lameness?

It is of considerable interest to compare with modern sanitary food regulations the early beliefs of the ancients on this subject. Garlic, leeks and onions, and all plants springing from impure substances were deemed unfit for food. The milk of human beings and of all wild animals except buffalo cows, and all substances turned sour, excepting sour milk and its products, were avoided. The food value of milk was recognized even in those early days. Other things to be avoided as food were carniverous birds, those living in villages, and those which feed by striking the beak, web-footed birds, those that scratch with their toes, those that live on fish, and pigs, especially village pigs. In these restrictions there seems to be a suggestion of the belief that proximity to man was conducive to unsanitary conditions. The proscription on meat goes further, and includes any solitary or unknown animal even if palatable, and five-toed animals, excepting the porcupine, hedgehog, iguana, and tortoise. A man who knowingly eats mushrooms, a village pig, garlic, a village cock, or any one of the various other items, becomes an outcast, while once a year a Brahmana must perform penance to atone for the unintentional eating of forbidden food. In another law barley and wheat are permitted with preparations of milk, while meat-eating goes by contraries, the animals destitute of motion being the proper food of those that move. An early expression of the modern butter fats regulations is revealed in the injunction that nothing should be eaten from which the oil had been extracted.

Public health administration of today is still attempting to regulate some matters considered even in prehistoric times. "One commodity mixed with another must not be sold as pure," is one of the injunctions, "nor a bad one as good, nor less than the proper quantity and weight." "Let the king fix the rates for the purchase and sale of all marketable goods," said Manu, "having considered whence they come, whither they go, how long they have been kept, the probable profit, and the probable outlay."

In many instances religious principles were the fundamental motives in regard to hygiene and sanitation. "Let him not bathe naked," seems to be a relic of water worship, while the pollution of a stream by human wastes, distinctly forbidden, probably had the same origin. On the other hand, however, the offensiveness of these wastes and not improbably the danger from them suggested the injunction to cover such material with the earth, sticks, and clods. In regard to eating utensils, it was required that the karu and the spoon be cleansed with hot water. Manu considered water an important purifying element, and ordered that it be sipped from the palm of one hand in some part designated according to the purpose. It was expressly forbidden to sip from the joined hands, possibly on account of the impurity of the left hand, to which were relegated all the menial duties, so that to become pure it must be washed ten times, then both hands seven times. The elements, earth, fire, water, and the wind were never unclean, while flies, the shadow of a cow or a horse, or a ray of the sun were cleansing factors.

Nor were the ancients without eugenic relations. Marriage was forbidden with women who were sickly or subject to hemorrhoids, consumption, weakness of digestion, or white or black leprosy. In one respect, by stating that "the mouth of a woman is always pure," the Manu laws discounted the bacteriological convictions of the twentieth century.

STANDARDS OF PHYSICAL FITNESS FOR CHILDREN ENTERING EMPLOYMENT.

THE preliminary report of the Permanent Committee on Standards of Physical Fitness for Children Entering Employment, appointed by the Children's Bureau of the U. S. Department of Labor, has been announced. The report consists of two parts: General Recommendations and Minimum Standards of Physical Fitness for Children Entering and Working in Industry. The general recommendations advocate a minimum age of 16 years for entrance into industry on the ground that the

period of pubescence, not completed in the majority of cases until the sixteenth year, is a time of special strain for the child. No child, according to the recommendations, should be allowed to go to work until he has had a complete physical examination and has been declared physically fit for the particular occupation which he is about to take up. A reëxamination for children when changing occupations and periodical examinations for all working children are deemed necessary. The need of special study by local administrative and medical officers of occupations in which children are likely to be employed is pointed out, and further scientific study of the effect of different kinds of work on the physique of boys and girls in their teens is declared to be essential. The fields which, in the opinion of the Committee, are in need of special research are listed.

The necessity for further study is urgent. However, on the basis of scientific studies already made and the experience acquired in administering child labor laws prescribing physical requirements now in force in a few states, it is possible to formulate certain tentative standards. These is it expected will aid materially in safeguarding children from the evil results of premature and unsuitable work.

The suggested standards cover normal development, indicate what constitutes sound health and physical fitness for specific occupations, and emphasize points to be observed and methods to be employed in physical examinations. Defects for which children should be permanently refused certificates of employment and those for which temporary refusals should be made are listed. A record form for the use of physicians in examining children and careful instructions for filling in this form are appended to the report.

The report will be sent in mimeographed form for criticism, before being printed, to experts in industrial hygiene, state labor departments, local certificate issuing officers, and interested persons throughout the country.

The Committee consists of the following persons:

Dr. George P. Barth, Director of Hygiene, City Health Department, Milwaukee, Wis., Chairman; Dr. Emma M. Appel, Employment Certificate Department, Chicago Board of Education; Dr. S. Josephine Baker, Chief, Bureau of Child Hygiene, Department of Health, New York City; Dr. Taliaferro Clark, representing the U. S. Public Health Service; Dr. C. Ward Crampton, Dean, Normal School of Physical Education, Battle Creek, Mich.; Dr. D. L. Edsall, Dean Harvard Medical School; Dr. George W. Goler, Health Officer, Rochester, N. Y.; Dr. Harry Linenthal, Director of Industrial Clinic Massachusetts General Hospital, Boston, Mass.; Dr. H. H. Mitchell, representing the National Child Labor Committee; Dr. Anna E. Rude, Director of Hygiene Division, U. S. Children's Bureau; Dr. Thomas D. Wood, Chairman on Health Problems and Education, Columbia University, New York City; Miss E. Nathalie Matthews, Director Industrial Division, U. S. Children's Bureau, Secretary.

MEDICAL NOTES.

Gift to Ohio State University.—Four hundred thousand dollars have been given by Charles F. Kettering, a trustee of the University, to Ohio State University, to be used in connection with the college of homeopathy.

Meeting of Surgeons at Montreal.—Surgeons from the United States, Great Britain, and South America will attend the clinical congress of the American College of Surgeons at Montreal on October 11 to 15. Fellowships in the college will be conferred on several Canadian and American surgeons. Consulting surgeons of the British Army will send a delegation to express appreciation of the work done by American surgeons with the British troops during the war.

Proposed Union of Physicians.—The following statements have been made by Dr. Thomas P. Foley, chairman of the contract practise committee of the Chicago Medical Society, who has started a movement among the members of the society to organize a union among the members of the profession in Chicago:

Why should a physician, who has studied for years to perfect himself for his work, be paid less than an unskilled laborer? Yet it is the rule rather than the exception.

Recently a physician giving full time to industrial surgery in a large Chicago plant, rendered first aid to a man working as an unskilled laborer. The physician received $75 a month with room and board. The laborer's pay

check for one week, which he showed the physician, was for $80.

Take the state service for example. At the Dunning Hospital for the Insane the chief electrician stands next on the pay roll to the superintendent. His salary is $265 a month. That of the highest paid physician on the staff is only $245. The electrician is a union man. The physician has no organization back of him.

We propose to form an organization along semi-union lines in Chicago like the lawyers' association and other such bodies of professional men. It is not aimed at the public, but rather at industrial and other corporation employers of physicians.

INTERNATIONAL SURGICAL SOCIETY.—At the recent meeting of the International Surgical Society of Paris, Dr. W. W. Keen, professor of surgery at the Jefferson Medical College in Philadelphia, presided at the opening session of the five-day congress. After an address of welcome delivered by M. Honnorat, Minister of Public Instruction, Dr. Keen addressed the meeting, discussing the principal ideas which surgeons of modern days must defend and reviewing the work done in advancing the art of surgery during the war. He commented also upon the great contributions made by the French surgeons. Other subjects discussed at the meeting were surgery of the heart and blood vessels, surgical radiography, surgical hematology, fractures of the thigh, prophylaxis and treatment of tetanus. An exhibition of the most modern apparatus for the treatment of fractured limbs was given. The meeting this year is the fifth congress which has been held.

THE JOHN B. MURPHY MEMORIAL ASSOCIATION.—The death of Dr. John B. Murphy of Chicago on August 11, 1916, created among laymen and the medical profession a desire that a proper memorial be erected to his memory. It has been proposed, therefore, by the John B. Murphy Memorial Association that there be constructed at an estimated cost of five hundred thousand dollars, the John B. Murphy Memorial Hall of the American College of Surgeons on a site in Chicago given by a number of prominent citizens and accepted by the Regents in behalf of the College. In this memorial the College will acquire a building architecturally beautiful and much needed for important conferences and convocations and meetings for national and local medical societies. Space will be provided also in which it is proposed to maintain a pantheon of American medicine and surgery. To execute the suggested design will require about five hundred thousand dollars; of this amount, one hundred thousand dollars has been pledged, providing the balance of the requisite sum is subscribed. It is hoped that members of the profession will give this project their active support.

THE PEKING UNION MEDICAL COLLEGE.—In a partial review of the work of the Rockefeller Foundation during 1919 it has been announced that the entire plant of the Peking Union Medical College, established through the China Medical Board of the Rockefeller Foundation, probably will be completed by January 1, 1921. Three of the teaching buildings of the college were occupied in October, 1919. The completed institution will include the following buildings: laboratories for anatomy, physiology, and chemistry; a pathology building; a two hundred and fifty bed hospital with provisions for about thirty private rooms; a large out-patient department; a hospital administration unit with quarters for resident physicians and internes; a nurses' home; plants which will supply water, heat, light, power and gas; and faculty residences.

GIFTS OF THE GENERAL EDUCATION BOARD AND OF THE ROCKEFELLER FOUNDATION.—The following announcements have been made by the trustees of the General Education Board and of the Rockefeller Foundation:

For appropriations from the fund of $50,000,000 which Mr. Rockefeller gave last December nearly 250 institutions have made application to the General Education Board. A careful statistical inquiry shows that in order to raise the level of salaries in a sufficiently large number of these institutions, to a degree somewhat commensurate with increased cost of living, their endowment funds would have to be increased by from $150,000,000 to $200,000,000.

It is evident that to accomplish this result the $50,000,000 in the hands of the board will have to be supplemented by funds from other sources in the ratio of two or three to one. This has been kept in mind in making appropriations which have been made contingent upon the raising of additional amounts.

At the recent meeting appropriations were made at ninety-eight colleges and universities out of those which are under consideration. To this group of institutions the General Education Board appropriated the endowment to increase salaries the sum of $12,851,666 on condition that they would themselves reach the

goal they had set and secure for the same purpose supplementary sums aggregating $30,613,334. Thus, these colleges and universities, if successful, will increase their endowments available for teachers' salaries to the extent of $43,465,000.

In a few cases institutions are not asking for endowment funds but only for temporary contributions toward a certain total annual subscription which it is hoped later to fund permanently. The board has made a number of such appropriations on a two- or three-year basis.

For these purposes an additional sum of $2,184,384 was appropriated covering a period of one to three years, making a total appropriation by the General Education Board from Mr. Rockefeller's special gift of $150,036,050.

In the following list appropriations to medical schools in the United States were made by the General Education Board, while those to institutions in Brussels and Halifax were voted by the Rockefeller Foundation:

Washington University Medical School, St. Louis.—For endowment, $1,250,000; for additional laboratory facilities and equipment, $70,000.

Yale Medical School.—For endowment (toward a total of $3,000,000), $1,000,000.

Harvard Medical School.—For improved facilities in obstetrics, $300,000; for the development of teaching in psychiatry, $350,000.

Johns Hopkins Medical School.—For development of a new department of pathology (toward a total of $600,000), $40,000.

Dalhousie University Medical School, Halifax.—For buildings and equipment, $400,000. For endowments, $100,000.

Medical Research Foundation of Elizabeth, Queen of the Belgians, Brussels.—For general purposes of medical research, 1,000,000 francs.

Superstition Among Rumanian Peasants.—Among the Rumanian peasants, and particularly among the gypsies, there is a superstition that the death of a child is caused by an evil spirit having entered the body of the mother, and that beating the mother will drive out the devil and cure the child. Consequently these peasant mothers beat themselves when one of their children is ill. Recently a doctor attached to the American Red Cross Commission was called to see a Rumanian gypsy woman. He found that she was suffering from pneumonia but he also noticed numerous bruises on her chest, and upon inquiry was informed through an interpreter that one of her children had died two weeks earlier. The superstition is common among the peasant folks of Rumania. In numerous instances, the self-inflicted chastisement has led to permanent disability, and death has been known to result from the beating.

Award of the Cameron Prize.—Announcement has been made of the award of the Cameron Prize of the University of Edinburgh to Sir Robert Jones, in recognition of the advances he has made in orthopedics and his valuable contributions to the literature of the subject during the past five years. The prize was founded in 1878 by the late Dr. A. R. Cameron of Richmond, New South Wales, to be awarded annually to some person who within the previous five years has made important and valuable additions to practical therapeutics. The prize is of the value of about one hundred and fifty pounds. One of the conditions of its award is that the recipient shall give a lecture or course of lectures in the University. The first recipient was Pasteur; the second, Lister. The prize has not been awarded since 1915, when it was given to the late Sir Lauder Brunton.

Award of Honorary Degrees by the University of Cambridge.—The honorary degree of Doctor of Laws was conferred by the University of Cambridge on June 29 upon the following distinguished members of the profession attending the eighty-eighth annual meeting of the British Medical Association:

Sir Thomas Clifford Allbutt, K.C.B., M.D., Regius Professor of Physics in the University of Cambridge, President of the British Medical Association; Dr. Jules Bordet, Professor of Bacteriology, Parasitology, and Epidemiology in the University of Brussels; Dr. Simon Flexner, Director of the Rockefeller Institute for Medical Research; Dr. Piero Giacosa, Professor of Experimental Pharmacology in the University of Turin; Sir George Makins, G.C.M.G., President of the Royal College of Surgeons of England; and Sir Norman Moore, Bt., President of the Royal College of Physicians of London.

BOSTON AND MASSACHUSETTS.

Bequest to Addison Gilbert Hospital.—The sum of four thousand dollars was bequeathed to the Addison Gilbert Hospital of Gloucester by the will of the late Mrs. James S. Ayer of Gloucester.

FALL RIVER MEDICAL SOCIETY.—At a meeting of the Fall River Medical Society on July 21, the members voted against the Maternity Bill now before the Legislature.

AWARD OF HONORARY DEGREE TO DR. HARVEY CUSHING.—The honorary degree of Doctor of Laws was conferred upon Dr. Harvey Cushing on July 29, by Cambridge University, England.

INSTRUCTIVE DISTRICT NURSING ASSOCIATION.—The work of the Instructive District Nursing Association in Boston has increased considerably during the first six months of 1920. During this period, a total number of 169,529 visits was made by the visiting nurses, and 17,956 new patients registered. Of these new patients 2,562 were new-born babies, and of the visits, 12,180 were made to expectant mothers. This represents a gain over the work done in the first months of 1919 of 51,047 visits and 6,468 new patients, with an increase of 721 new-born babies registered with the Association and 5,822 visits made to expectant mothers. The accessibility of the nurses has been appreciated particularly by communities in the North and West ends. A total number of 30,304 visits was made and 3,165 new patients registered in these districts, an increase of 9,052 visits and 1,056 new patients. In Dorchester, 24,334 visits and 2,900 new patients represent the gain over the first six months, 1919, of 11,589 visits and 1,385 new patients.

THE BOSTON STATE HOSPITAL.—The eleventh annual report of the Boston State Hospital for the year ending November 30, 1919, has been issued. At the beginning of the statistical year there was a total number of 1,919 persons under treatment either in the hospital department, the psychopathic department, in private families, or on visit or escape. At the close of the year this number had increased to 2,039. The psychopathic department received 1,882 patients in its wards during the year, while, in addition, 2,112 other persons were given advice and treatment by the out-patient department. The psychopathic department has been relieved of the functions of instruction and research by the establishment of the Massachusetts State Psychiatric Institute by the Commission on Mental Diseases. The total number of cases treated by the entire institutions during the year was 4,068. The recovery rate, based on the number of first admissions, was 6.3 per cent.; based on the total number cared for during the year, 2.63 per cent.; based on the average daily population of the institutions, 6.34 per cent. The corresponding death rates were 19.13 per cent., 7.99 per cent., 19.26 per cent.

The forms of mental disease shown by first admissions included traumatic psychoses, general paralysis, senile psychoses, psychoses with cerebral arteriosclerosis, cerebral syphilis, Huntington's chorea, brain tumor, and other brain or nervous diseases, alcoholic psychoses, psychosis with pellagra, psychoses with other somatic diseases; manic-depressive psychoses, involution melancholia, dementia praecox, paranoiac conditions, epileptic psychoses, psychoneuroses and neuroses. The general health of the hospital patients has been good during the year. The influenza epidemic, however, continued during December, 1918, and January, February and April of 1919. Of the 548 cases to whom the vaccine furnished by Dr. Timothy Leary of Tufts Medical School was administered, only one, or .18 per cent., developed pneumonia, and only three, or .55 per cent., died.

The out-patient department of the hospital has supervised patients in family care and those at home on visits, and the after care of cases discharged from the custody of the hospital. A total number of 435 cases has been cared for by the social service workers of the hospital. The report contains summaries of the work done by the pathological laboratory and of the surgical and dental work, and statistical tables of cases. Plans have been made for extending the work in occupational therapy in the hospital wards.

The future development of the hospital needs consideration. When the Boston Insane Hospital became a state institution in 1908, it had a capacity of 764 beds. The new building nearing completion will bring the total capacity up to 2,092; yet even this does not provide facilities sufficient for the admissions from the city of Boston, and if the hospital were doubled in size it would not have room enough for the Boston residents now in state hospitals. As the institution could be increased to a capacity of over five thousand, this step should be contemplated if the insane patients of Boston are not to be sent indefinitely to institutions far removed from the city.

THE PETER BENT BRIGHAM HOSPITAL.—The sixth annual report of the Peter Bent Brigham Hospital records the activities and services of the hospital during the year 1919. More patients were cared for by the hospital during 1919 than ever before, although the number of days' treatment was slightly lower than that of 1918; with the exception of 1917, the number of visits in the Out-Door Department exceeded that of any previous year. There were admitted during the year to the hospital wards and single rooms 2,411 medical and 1,871 surgical cases, and a total number of 4,444 patients received treatment. The Out-Door Department treated 7,631 new cases, and 49,972 visits were made.

The report of the Surgeon-in-Chief describes the growth of the hospital surgical service since its organization seven years ago, and outlines its present needs for insuring ade uate development in the future. The classi icaton and tabulation of diagnoses and operations on the surgical service follows the arrangement suggested by the interhospital committee appointed to agree upon a classification of diseases, incorporating the international classification section numbers, which possibly may prove to be of some aid in the compilation of vital statistics. The summary of surgical statistics shows a total number of 1,563 operations, 76 incidental operations, and a total number of 102 deaths, of which 79 were post-operative and 23 non-operative. Of the 198 operations performed on the central nervous system in the neurological service, there were 18 fatalities, giving 9.1 per cent. mortality. The report contains 79 abstracts of surgical cases.

The work of the Medical Department has been extended by the appointment, in addition to the group of resident and visiting physicians who carry on the routine care of the patients and therefore have only a limited amount of time for research work, of a number of younger physicians, associates, who devote variable amounts of time to research problems in the wards and laboratories, and in the Out-Patient Department. These Associates have assisted also in grouping the patients in the Out-Door Department so that special attention and care could be given to patients suffering from the same diseases. The increasing demands upon the medical as well as upon the surgical department make it necessary to enlarge the staff if future investigative work and service to patients are to be continued in accordance with the advance of medical science. The Medical Service has been assisted in the maintenance of its Out-Door Department by the coöperation of the Social Service Department.

During 1919, 1,134 patients were brought to the attention of the Social Service Department. There has been a social worker each for the medical wards, the surgical wards, the Out-Door Department, the diabetic clinic, the heart clinic, and the gastric, tuberculin, and venereal clinics. Patients with reportable specific diseases and certain other infectious diseases, and also patients who have been advised to return for observation or treatment, have been cared for by follow-up work. In 1919 for the first time, occupational therapy was introduced in the hospital and out-patient wards.

The Pathological Department has made 106 autopsies, and has carried on the usual bacteriological examinations. The research work of the department was extended by the month's absence of Dr. Wolbach in Mexico for the purpose of making studies on typhus fever. The material obtained by Dr. Wolbach enabled him to demonstrate the causal agent of the disease and to classify it in the new group of parasites of which the cause of Rocky Mountain spotted fever is the type.

Obituary.

LAURA ANN CLEOPHAS HUGHES, M.D.

DR. LAURA ANN CLEOPHAS HUGHES died at the House of the Good Samaritan, Roxbury, July 30, 1920. The daughter of Lawrence John Hughes, a contractor, and Nancy Conlan Hughes, a noted beauty, she was born in Boston in 1860 and was educated by a relative, by the Sisters of Charity and in the public schools. In the eighties of the last century she became a pupil nurse at the Boston City Hospital. There she received a diploma in due course, remaining as head nurse and supplementing her training subsequently by service at the Boston Lying-In Hospital. Going on to the study of medicine, she graduated from Tufts College Medical School in 1895, joined the Massachusetts Medical Society the following year, and settled in practice in her native city after spending a few months in the Roman Hospital at Rome, Italy.

On the opening of the Spanish War Dr. Hughes organized the Boston Society of Red Cross Nurses, which met at her home, and when hostilities began some of the nurses were ready for active service. She served as a nurse during the war and had charge of a department at Montauk. She was an ardent supporter of the idea of trained nurses for the Army and Navy, and her efforts at Washington resulted in recognition of her plan for the Army. She was also an advocate of the registration of nurses and of raising the standards of nursing.

In 1914, after the Salem fire, Dr. Hughes opened a baby camp and hospital in that city, setting up tents and cots where mothers and babies could receive care. In October, 1918, Health Commissioner Mahoney appointed Dr. Hughes medical inspector for the city of Boston. She was the first and only woman medical inspector in the health department of the city.

She had a splendid personality, a tall, commanding figure, and a ready sympathy and interest.

Dr. Hughes was a member of the American Medical Association, Massachusetts Medical Society, an honorary member of the Ladies' Catholic Club, St. Mary's Academy Alumnae Association of South Bend, Ind., life member of the Holy Ghost Hospital Association, and she was one of the pioneers in the organization of the 101st Auxiliary Association. She also was an early member of the Professional Woman's Club. Her sole surviving relative is a sister, Miss Sarah Joseph Hughes, a business woman of Boston.

AWARD OF HONORARY DEGREE BY CAMBRIDGE UNIVERSITY.—The honorary degree of Doctor of Laws was conferred by Cambridge University upon John Jacob Abel, professor of pharmacology at Johns Hopkins Medical School, Baltimore, on July 29.

BUBONIC PLAGUE AT GALVESTON, TEXAS.—On July 30, two additional deaths from bubonic plague were announced by the public health officer at Galveston, Texas. This brings the total number of cases to five, four of which have proved to be fatal.

Correspondence.

PSYCHICAL RESEARCH AGAIN.

Mr. Editor:

At last a physician comes to the defense of spiritualism. Dr. D. W. Wells, in the JOURNAL of August 5, gives a brief origin of the "Society for Psychical Research" with its personnel, and quotes from Prof. Barrett and the late Prof. Hyslop in defense of "spirits." Now the authority of a great name or a man's eminence or ability, whether in his own or in some other sphere, is no guarantee in itself of sound judgment. A catalog of great names plainly affords no proof of the truth of any doctrine whatsoever. Were the opinions of outstanding men a test of truth, we might still contend concerning the earth's flatness or debate the respective merits of the heliocentric and geocentric theories. The truth or falsehood of a theory can be determined only by studying and weighing the evidence on which it rests. When a theory is found to agree with most of the facts involved, it may be regarded as an approximation of the truth, and when it is in harmony with all the facts it becomes an established truth.

It might interest Dr. Wells to know that Prof. Newcomb, the first president of the "Research" society, and a distinguished astronomer, relinquished in despair his quest for reliable evidence of spiritual forces and returned to his original sphere of physical research as the sole channel available for furthering the happiness and knowledge of mankind. And at the time Sir Oliver Lodge was on his American lecture tour, Prof. G. Stanley Hall of Clark University, wrote one of the most scathing criticisms of Sir Oliver and of spiritualism, which was published in the *Boston Herald* last spring. I agree with the doctor when he says that "in deciding what should be our attitude toward psychical research, one should bear in mind the personnel of the founders of the society."

Let me again repeat that "It is the duty of the physician to protect his business and to combat all cults not based on scientific facts." The doctor says that statement is "so bluntly commercial that it should make every conscientious physician blush for shame." Does an honest effort to maintain high scientific standards in the medical profession and to protect that profession from charlatans and fakers savor of commercialism? Does Dr. Wells give his services or does he sell them for a pecuniary reward, the same as all physicians? I will pass over the statement which accuses the author of essaying "to speak for the medical profession" as not only unwarranted but ridiculous, and it is an old game to accuse your opponent of "dogmatism" when you are unable to answer his arguments.

Self-delusion and the will to believe, because they want to believe, have made many adherents to the spiritualistic cult. No movement has had so much fraud, deception and illusion connected with it as spiritualism. The scientific method is not the method of "spiritists." To realize the difference between the two nothing could be better than to read a book by Sir Oliver Lodge or Conan Doyle on spiritualism and then to turn to Darwin's "Origin of Species." You are then in another world, a world where the most welcome facts are most doubted and every link in the chain of reasoning is jealously tested. No question should be taken up without reference to its evolutionary aspect, but few take the trouble to investigate either their own or any other religion, for comparison and classification are dangerous to "belief." Honest criticism tends to constructiveness along all lines.

I might suggest to the doctor that we hire a hall and debate the subject. No doubt it would prove instructive, amusing, and interesting to us both.

J. DANFORTH TAYLOR.

East Boston, Aug. 5, 1920.